

January 1, 2012

OFFICE USE ONLY
Date Received: _____
RZN# _____
CUP# _____

TOWN OF BLACKSBURG
VDOT TRAFFIC IMPACT ANALYSIS (TIA) SUPPLEMENTAL APPLICATION

This application, appropriate fee, and accompanying documentation must be submitted in conjunction with the corresponding rezoning, conditional use permit, or comprehensive plan amendment before any application can be reviewed by staff. If you have any questions, please contact the Planning and Building Department.

Name of Development: 1222 Patrick Henry
Address/Location: 1222 Patrick Henry Drive
Tax Map Parcel: 195-A 5
Size of Site: 4.215 acres
Proposed Use: Multi-Unit Residential
Current Zoning District: R-5
Existing Future Land Use Classification: High Density Residential

This application is submitted in conjunction with a

- Rezoning Application. Proposed Zoning District: PRD
 Conditional Use Permit Application. Proposed Conditional Use:
 Comprehensive Plan Amendment. Proposed Future Land Use:

This is the first, second, third or subsequent submission of the TIA for review by VDOT.

A traffic impact analysis is is not required for the proposed project:

1. Yes or No, the site is located 3,800 feet along the vehicle path of traffic which is less than 3,000 feet from VDOT maintained roadways, or is within 3,000 feet of a non-limited access state controlled highway, or is within 3,000 feet of a connection to a state limited access highway.
2. *If the answer to question #1 is Yes, complete the following:*
 - a. Yes or No, the proposed development generates 1,050 vpd which is greater than the VDOT requirement of 5,000 vehicles per day.
 3. Yes or No, the proposed comprehensive plan amendment results in substantial impact of 5,000 additional vehicle trips per day or results in substantial changes to the existing transportation network and infrastructure of state controlled highways.
 4. No, a new TIA study is not required because a previously submitted TIA is still applicable for the project site. *(Note: the appropriate documentation must be attached to this application)*
 5. Yes or No, a VDOT Scope of work meeting has been held.

If a TIA is required, please provide the following information:

Name of Property Owner(s): N/A
Address: _____
Phone: _____ Fax: _____
Email address: _____

Applicant to whom review comments will be sent: N/A

Address: _____

Phone: _____ Fax: _____

Email address: _____

Project Engineer who prepared TIA (if different from applicant): N/A

Address: _____

Phone: _____ Fax: _____

Email address: _____

Please check all applicable boxes of information submitted with this application:

1. Review Fee Check made payable to VDOT for

First, Second or Third review by VDOT

Rezoning or Conditional Use Permit request

Low volume road submission 24VAC30-155-40 A 3: \$250

All other submissions: \$1000

Comprehensive Plan Amendments: \$1000

2. For the Town of Blacksburg, please provide a *digital submission of the following:*

a. One signed copy of the Town's VDOT Supplemental TIA application.

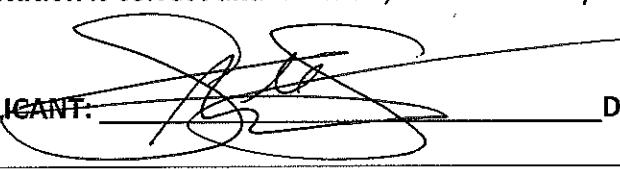
b. One complete copy of the TIA submitted to VDOT including a completed checklist of information and signed scope of work meeting agreement.

c. One copy of the VDOT review fee check.

d. One copy of letter and supporting information documenting why a new or updated TIA is not required for this project.

3. For VDOT, three paper copies of the complete Traffic Impact Analysis. Forms and additional information can be found at <http://www.virginiadot.org/projects/chapter527/default.asp>

By signing below, I acknowledge that all information on this application and included in the supporting documentation is correct and accurate, and has been prepared by an appropriate licensed professional.

SIGNATURE OF APPLICANT: 

Date: _____

8/1/2018

For Staff Use Only:

First Submission Second Submission Third or Subsequent Submission

Reviewed and Accepted as complete by _____ Date _____

TIA forwarded to VDOT by _____ Date _____

Rejected by _____ Date _____

Reason for rejection: _____

TRAFFIC STUDY

FOR
PROPOSED DEVELOPMENT

1222 PATRICK HENRY PRD

IN

TOWN OF BLACKSBURG, VIRGINIA

DATE: JULY 23, 2018

~Job No. 24180058.00~



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Christiansburg, VA 24073
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1. INTRODUCTION

The developer for this project is proposing to develop the existing parcel located at 1222 Patrick Henry Drive as new multi-family housing. The existing site consists of a single-family residence with associated gravel driveway from Patrick Henry Drive. The proposed development consists of multi-family units with 276 bedrooms (see Appendix A for vicinity map and Appendix B for concept plan). Two right-in, right-out entrances are proposed on Patrick Henry Drive.

The site is located on the north side of Patrick Henry Drive between Progress Street and Seneca Drive and is identified as Town of Blacksburg Tax Parcel #196-A5. The property is currently zoned R-5, Transitional Residential District.

Patrick Henry Drive is a four-lane, undivided roadway that provides east/west access between Toms Creek Road and Harding Avenue. Progress Street is a two-lane undivided roadway that provides north/south access from Givens Lane to North Main Street. The posted speed on both of these local roads is 25 mph. The existing intersection of Patrick Henry Drive and Progress Street is signalized.

Level of service and queue lengths will be analyzed for the Patrick Henry Drive/Progress Street intersection. Three different scenarios will be considered: Existing Condition 2018, Background Condition 2020, and Buildout Condition 2020 to determine the effects of the background traffic growth and the proposed development on this intersection. Turn lane requirements will be analyzed at both propose entrances to determine if right turn lanes are warranted.

Level of service (LOS) for signalized intersections is evaluated based on of control delay per vehicle and the driver's perception of those conditions. Control delay is the portion of the total delay attributed to the control at the intersection. Table 1 depicts the LOS scale with corresponding control delay per vehicle, with LOS "A" representing the best operating conditions and LOS "F" representing the worst.

LEVEL OF SERVICE CRITERIA FOR SIGNALIZED INTERSECTIONS	
Level Of Service	Avg. Control Delay (Sec./Veh)
A	≤ 10
B	$> 10 - 20$
C	$> 20 - 35$
D	$> 35 - 55$
E	$> 55 - 80$
F	≥ 80

Table 1: LOS Criteria for Signalized Intersections (HCM)

This study was undertaken by Balzer and Associates, Inc. to:

- determine the total number of vehicle trips generated by the potential development to be added to the adjacent street network;
- determine the impacts to level of service and queue lengths at the existing signalized intersection as a result of the background traffic growth and from the proposed development;
- and to determine turn lane requirements for the project.

2. ANALYSIS OF EXISTING CONDITIONS

The site currently contains a single-family residential house that will be demolished to allow for the proposed development. The existing intersection of Patrick Henry Drive and Progress Street is signalized. Signal timing information for the intersection was provided by the Town of Blacksburg and is included in Appendix D. VDOT traffic count data was available for the existing roadways and is listed below and included in Appendix C.

2017 VDOT Traffic Count Data:

Progress Street (south of Patrick Henry Drive):

AADT = 3,800 vpd

Directional Factor = 0.529

K Factor = 0.09

Progress Street (north of Patrick Henry Drive):

AADT = 1,100 vpd

Directional Factor = 0.759

K Factor = 0.109

Patrick Henry Drive:

AADT = 8,900 vpd

Directional Factor = 0.522

K Factor = 0.098

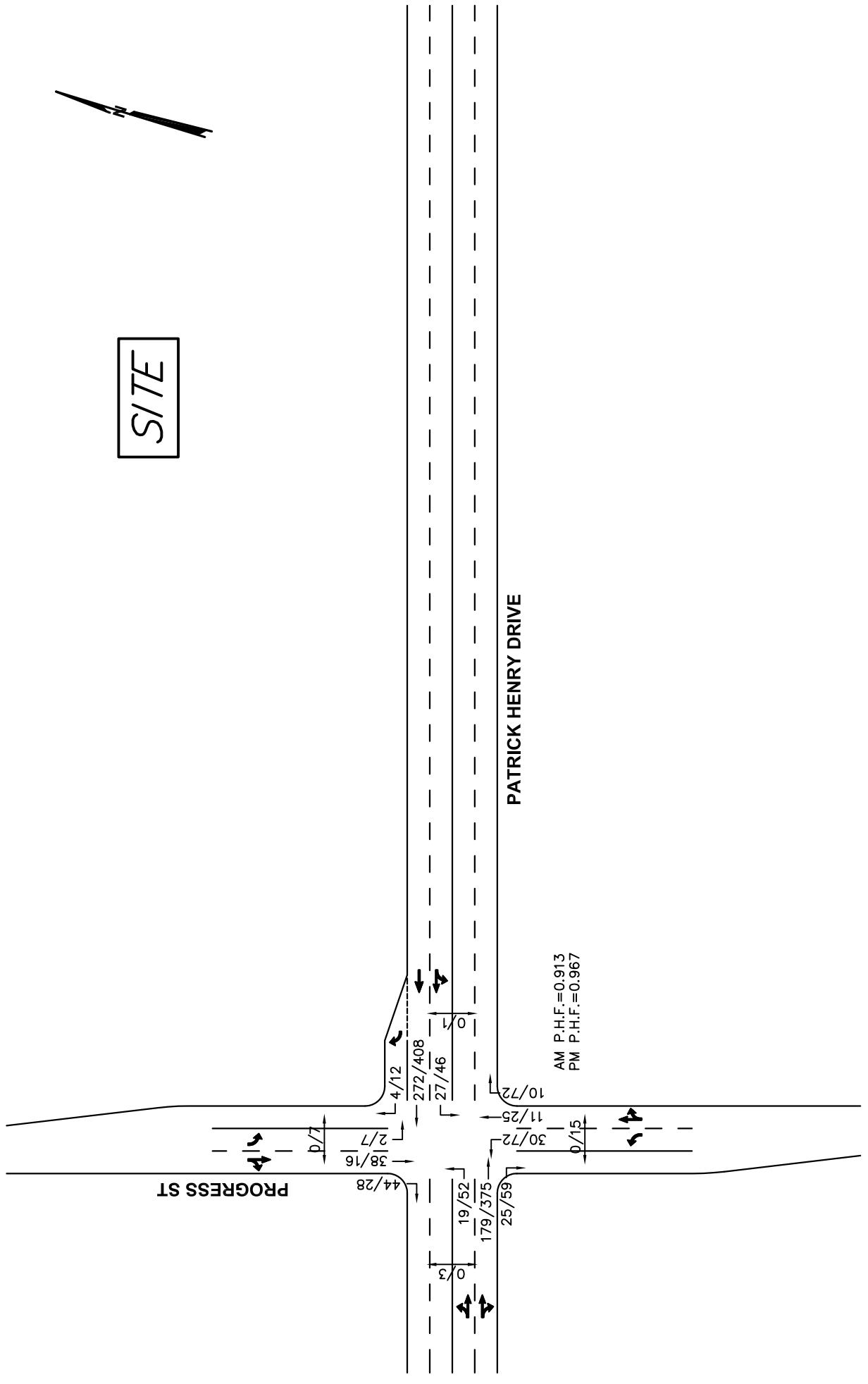
In addition to the VDOT published traffic count data, manual tube counts were performed in several locations by the developer in cooperation with the Town of Blacksburg to determine the appropriate peak hour windows. These tube counts were supplemented by turning movement counts at the existing signalized intersections. Turning movement counts were performed on Wednesday, April 4, 2018 from 8:00 AM – 10:00 AM and from 4:30 PM – 6:30 PM and on Thursday, April 5, 2018 from 7:30 AM – 11:30 AM and from 3:00 PM – 7:00 PM. These days and hours were chosen to capture the MWF and TT class schedules, and to capture the AM and PM peak hours on each day. This manual traffic count data is provided in Appendix C. Figure 1 graphically depicts the existing peak hour traffic volumes and Figure 2 shows the heavy vehicle percentages obtained from the counts.

Utilizing the data collected, the peak hour for AM analysis for the network was determined to be 8:30 AM – 9:30 AM on Thursday. The peak hour for PM analysis for the network was determined to be 5:00 PM – 6:00 PM on Thursday. The peak hours were determined by comparing the total vehicle volume at the two signalized intersections for each 15-minute period of each day.

The *Synchro 10* software was used to analyze the level of service and delays and the *SimTraffic 10* software was used to analyze the queue lengths for existing weekday AM and PM peak hours. The existing conditions levels of service, delays, and queue lengths are shown in Table 3. The *Synchro 10* and *SimTraffic 10* results are included in Appendix F.

As shown in Table 2, the intersection currently functions at an overall LOS 'C' in both the AM and PM peak hours. This intersection functions at an acceptable level of service under existing conditions.

FIGURE 1: 2018 EXISTING TURNING MOVEMENTS



LEGEND

xx/xx: AM/PM Peak Hour Traffic
xx/xx: AM/PM Peak Hour Pedestrians

FIGURE 2: HEAVY VEHICLE PERCENTAGES

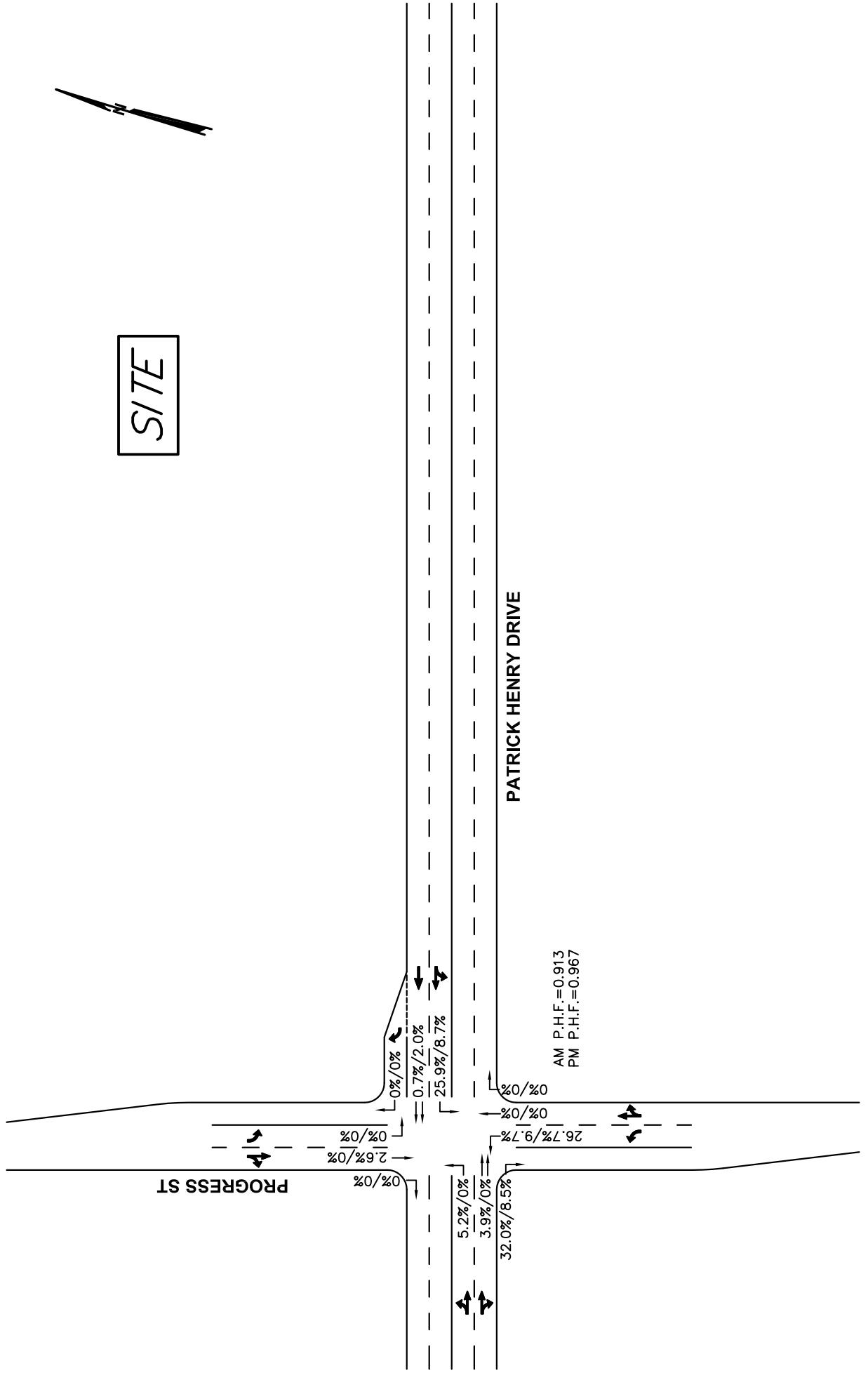


Table 2 - 2018 Existing Condition
1222 Patrick Henry PRD - Blacksburg, VA
Intersection Level of Service and Queuing Analysis

Intersection	Control	Approach	Available Storage (ft)	Levels of Service		Average Queues (ft)		Max Queues (ft)	
				AM	PM	AM	PM	AM	PM
1. Patrick Henry Drive & Progress Street	Signal	EBLT	--	C (25.2)	C (26.1)	73	148	132	251
		EBTR	--	C (24.8)	C (25.4)	28	88	90	211
		WBLT	--	B (16.8)	C (23.8)	77	147	148	230
		WBT	--	B (16.5)	C (23.3)	22	81	87	207
		WBR	150	B (14.8)	B (19.6)	3	8	30	33
		NBL	80	C (27.8)	C (34.2)	26	50	74	97
		NBTR	--	C (21.5)	C (25.7)	14	46	49	136
		SBL	140	C (23.7)	C (28.6)	1	4	22	31
		SBTR	--	C (21.8)	C (24.5)	34	20	87	59
		Overall		C (20.8)	C (25.3)				

Notes:

(1) Numbers in parentheses represent control delay in seconds per vehicle as reported by Synchro.

(2) Queues are average and 95th percentile queues as reported by SimTraffic with 10 recording intervals of 60 minutes.

3. ANALYSIS OF FUTURE CONDITIONS WITHOUT DEVELOPMENT

It is anticipated that the proposed development will be constructed and in use within 2 years, or in the year 2020. To analyze the future conditions and obtain the projected background traffic volumes, an annual growth factor was applied to the existing traffic volumes. Per discussions with the Town of Blacksburg, a growth rate of 0.5% was utilized to determine background traffic volumes. Figure 3 graphically depicts the projected traffic in 2020 with the growth rate applied.

It should also be noted that there is a separate rezoning request that has been submitted for Terrace View Apartments. The Terrace View project will include redevelopment of the site with a net increase of 988 bedrooms. A traffic study has been submitted for this project under separate cover. For the purposes of this analysis, the anticipated increase in traffic associated with the Terrace View development has been included with the background traffic for this project.

Table 4 provides a summary of the levels of service, delays, and queue lengths for the 2018 background condition. The *Synchro 10* and *SimTraffic 10* output can be found in Appendix F.

As shown in Table 4 for the background condition, the intersection functions at an overall LOS 'C' in both the AM and PM peak hours. This intersection functions at an acceptable level of service with existing and background traffic volumes included.

FIGURE 3: 2020 BACKGROUND TURNING MOVEMENTS

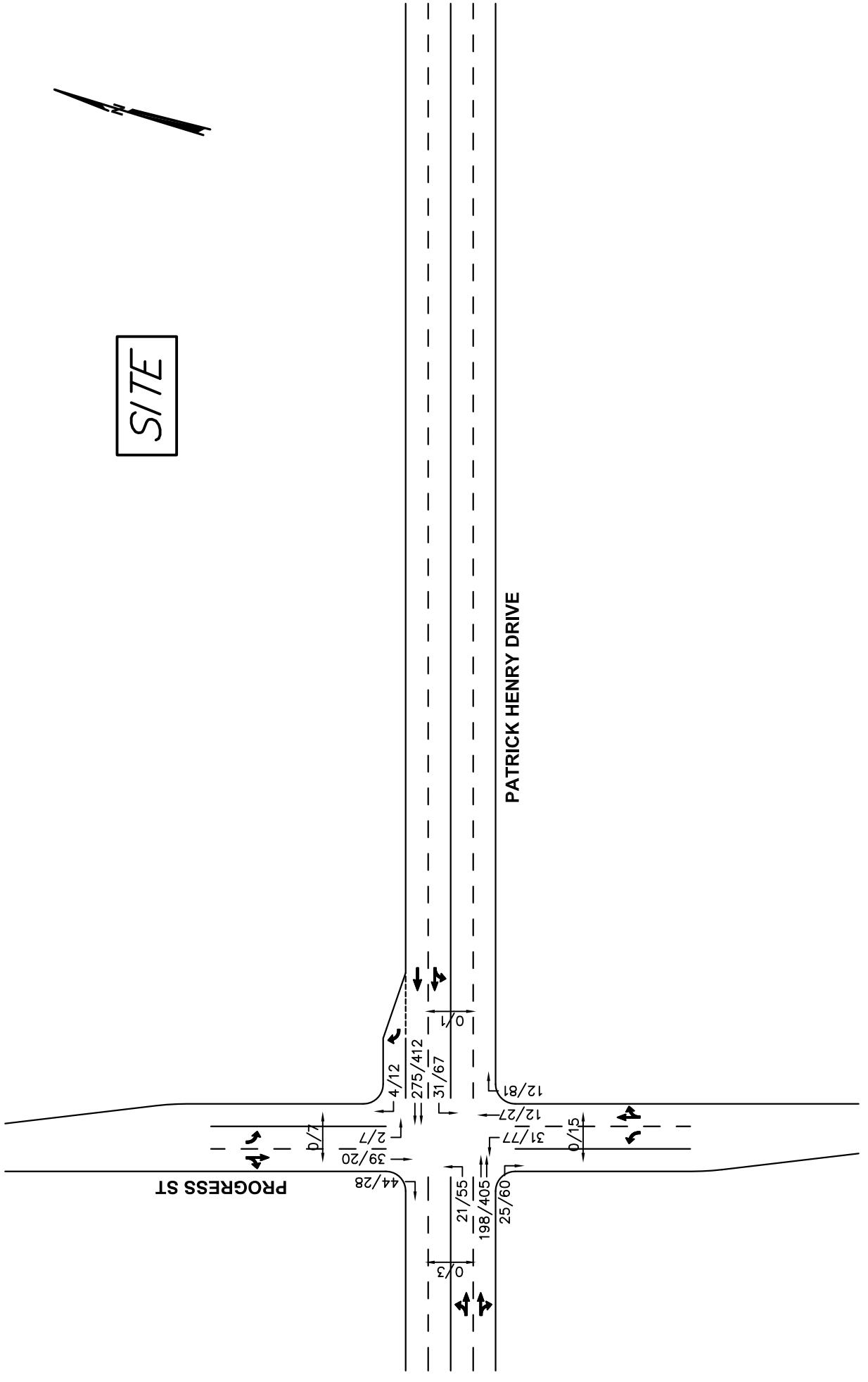


Table 3 - 2020 Background Condition
1222 Patrick Henry PRD - Blacksburg, VA
Intersection Level of Service and Queuing Analysis

Intersection	Control	Approach	Available Storage (ft)	Levels of Service		Average Queues (ft)		Max Queues (ft)	
				AM	PM	AM	PM	AM	PM
1. Patrick Henry Drive & Progress Street	Signal	EBLT	--	C (25.2)	C (26.4)	79	156	160	255
		EBTR	--	C (24.7)	C (25.6)	31	100	86	214
		WBLT	--	B (17.2)	C (25.0)	84	167	176	271
		WBT	--	B (17.0)	C (24.3)	23	101	102	239
		WBR	150	B (15.1)	C (20.1)	2	8	25	33
		NBL	80	C (27.9)	C (34.9)	27	55	71	98
		NBTR	--	C (21.8)	C (26.4)	16	52	52	170
		SBL	140	C (24.0)	C (29.1)	2	5	23	35
		SBTR	--	C (22.2)	C (25.1)	35	24	78	68
		Overall		C (21.1)	C (26.0)				

Notes:

(1) Numbers in parentheses represent control delay in seconds per vehicle as reported by Synchro.

(2) Queues are average and 95th percentile queues as reported by SimTraffic with 10 recording intervals of 60 minutes.

4. TRIP GENERATION

Trip generation for this study was based on the concept plan created by Balzer and Associates, Inc. (please see Appendix B) and information provided by the developer regarding the expected uses of the property. The policies and procedures found in the Institute of Transportation Engineers (ITE) *Trip Generation Manual, 10th Edition*, were employed to determine the potential site generated traffic volumes for the proposed development in the AM and PM peak hours.

For the off-campus student apartment use, trips were based on the total number of bedrooms. The projected trips were calculated using the equations and directional splits provided in the ITE Manual for student apartments over ½ mile from campus. The equations and directional splits are listed below:

<u>Time Period:</u>	<u>Equation:</u>	<u>% Entering / % Exiting:</u>
Weekday	$T = 4.09(X) - 78.98$	50% Enter / 50% Exit
AM Peak Hr of Adj. Traffic	$T = 0.15(X) + 10.64$	28% Enter / 72% Exit
PM Peak Hr of Adj. Traffic	$T = 0.31(X) - 1.81$	52% Enter / 48% Exit

			Trip Generation						
Land Use			AM Peak Hour			PM Peak Hour			Weekday
Proposed Development	ITE Code	Independent Variable	Enter	Exit	Total	Enter	Exit	Total	Total
Off Campus Student Apartments	225	276 Bedrooms	15	37	52	44	40	84	1,050

Table 4: Site-Generated Traffic

Based on knowledge of the area, it is anticipated that there will be significant usage of alternate means of transportation by residents of this development, including walking, bicycling, and bus via the Blacksburg Transit (BT). The BT is a particularly heavily used form of transportation, especially for trips to and from the Virginia Tech campus.

Based on discussions with the Town of Blacksburg, a 25% reduction has been applied to account for bus, pedestrian, and bicycle trips. Table 5 shows the site-generated trips with the 25% reduction.

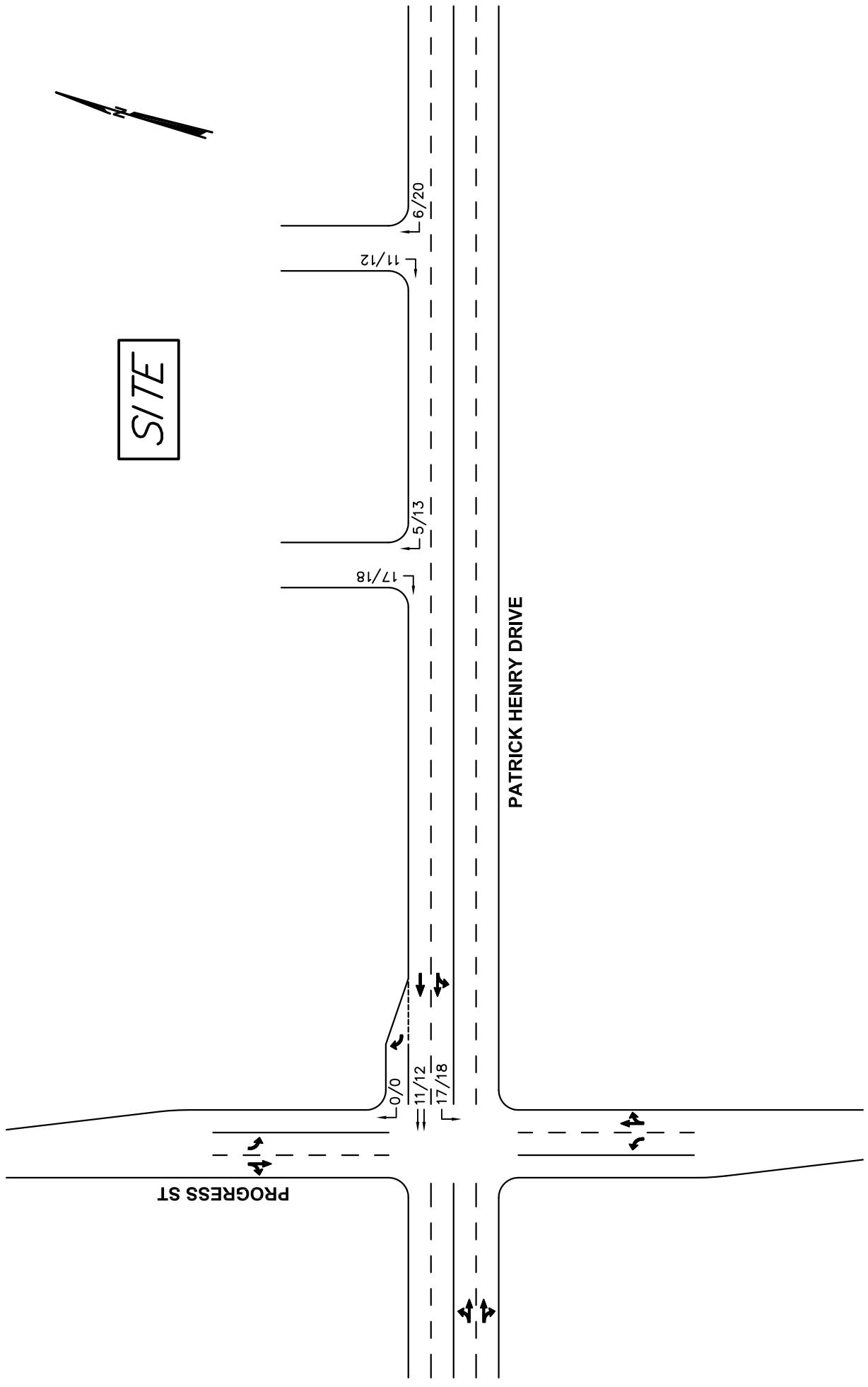
			Trip Generation						
Land Use			AM Peak Hour			PM Peak Hour			Weekday
Proposed Development	ITE Code	Independent Variable	Enter	Exit	Total	Enter	Exit	Total	Total
Off Campus Student Apartments - Proposed	225	276 Bedrooms	11	28	39	33	30	63	788

Table 5: Site-Generated Traffic (With 25% Reduction)

5. SITE TRAFFIC DISTRIBUTION AND ASSIGNMENT

The distribution of potential site generated traffic was completed by observing the directional splits from the traffic counts and by applying engineering judgment based on knowledge of the proposed uses, as well as the surrounding area. The directional percentages were then applied to the site generated traffic to determine the ingress/egress movements for each direction. Traffic assignment for the site-generated traffic is shown graphically in Figure 4.

FIGURE 4: SITE-GENERATED TRAFFIC



LEGEND

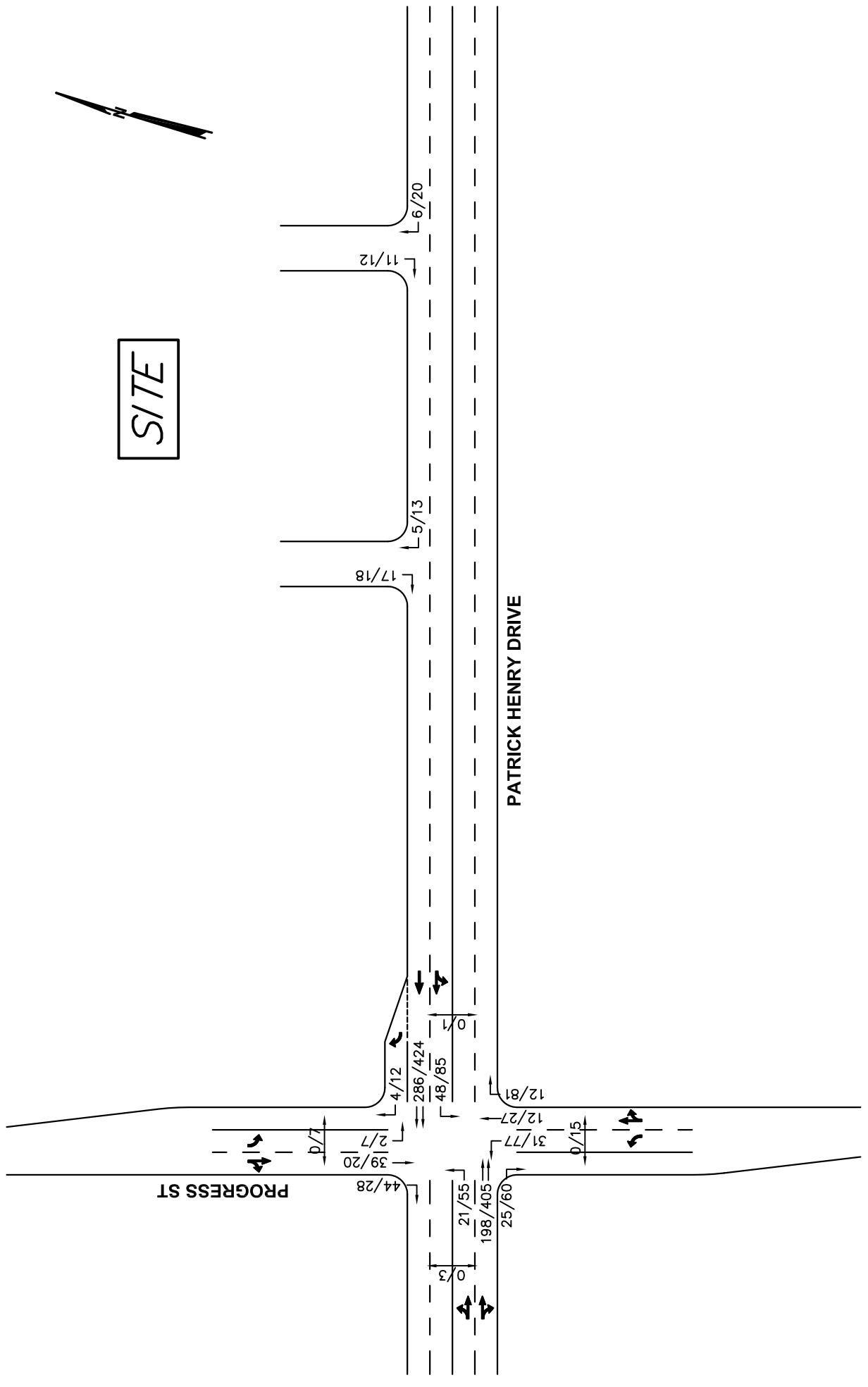
xx/xx: AM/PM Peak Hour Traffic
xx/xx: AM/PM Peak Hour Pedestrians

6. ANALYSIS OF FUTURE CONDITIONS WITH DEVELOPMENT

The buildout traffic was calculated by adding the 2020 background traffic (Figure 3) to the adjusted traffic from the proposed development (Figure 5). The 2020 buildout traffic for the signalized intersections is shown in Figure 6. The intersections were then modeled and evaluated using the *Synchro* and *SimTraffic* software. Table 8 provides a summary of the levels of service, delays, and queue lengths for the 2020 buildout condition. The *Synchro 10* and *SimTraffic 10* output can be found in Appendix F.

As shown in Table 6, the intersection will continue to function at an acceptable level of service with the projected background volumes and the site-generated traffic. The existing signalized intersection will function at an overall LOS 'C' in both the AM and PM peak hours. The levels of service do not change from Background to Buildout conditions. There will be minimal increases in overall control delay as a result of the proposed development and no signal improvements are recommended as a result of this development.

FIGURE 5: 2020 BUILDOUT TURNING MOVEMENTS



LEGEND

xx / xx: AM/PM Peak Hour Traffic
xx / xx: AM/PM Peak Hour Pedestrians

Table 6 - 2020 Buildout Condition
1222 Patrick Henry PRD - Blacksburg, VA
Intersection Level of Service and Queuing Analysis

Intersection	Control	Approach	Available Storage (ft)	Levels of Service		Average Queues (ft)		Max Queues (ft)	
				AM	PM	AM	PM	AM	PM
1. Patrick Henry Drive & Progress Street	Signal	EBLT	--	C (25.2)	C (26.4)	78	157	161	249
		EBTR	--	C (24.7)	C (25.6)	33	102	111	212
		WBLT	--	B (17.5)	C (25.6)	92	174	190	292
		WBT	--	B (17.2)	C (24.8)	28	105	130	242
		WBR	150	B (15.1)	C (20.1)	2	8	31	33
		NBL	80	C (27.9)	C (34.9)	27	52	78	97
		NBTR	--	C (21.8)	C (26.4)	18	49	53	176
		SBL	140	C (24.0)	C (29.1)	2	5	23	31
		SBTR	--	C (22.2)	C (25.1)	36	24	82	75
		Overall		C (21.1)	C (26.2)				

Notes:

(1) Numbers in parentheses represent control delay in seconds per vehicle as reported by Synchro.

(2) Queues are average and 95th percentile queues as reported by SimTraffic with 10 recording intervals of 60 minutes.

TURN LANE REQUIREMENTS

Turn lane requirements were analyzed at the proposed entrances onto Patrick Henry Drive. Turn lane requirements were evaluated by following the procedures and methodologies found in the *VDOT Road Design Manual, Volume I, Appendix F*.

Turning volumes were obtained from Figure 4. The approach volumes and opposing volumes were derived from the background volumes shown in Figure 3.

Patrick Henry Drive - Right-Turn Lane Warrant at Western Site Entrance

AM Peak Hour Analysis:

- 5 Vehicles per Hour Turning Right from Patrick Henry Drive
- Approach Volume = $310 \text{ VPH} + 5 \text{ VPH} = 315 \text{ VPH}$
- Right Turn Lane Requirement, as per *VDOT Road Design Manual, Appendix F*:
None Warranted (please see Appendix E).

PM Peak Hour Analysis:

- 13 Vehicles per Hour Turning Right from Patrick Henry Drive
- Approach Volume = $310 \text{ VPH} + 13 \text{ VPH} = 323 \text{ VPH}$
- Right Turn Lane Requirement, as per *VDOT Road Design Manual, Appendix F*:
None Warranted (please see Appendix E).

Patrick Henry Drive - Right-Turn Lane Warrant at Eastern Site Entrance

AM Peak Hour Analysis:

- 6 Vehicles per Hour Turning Right from Patrick Henry Drive
- Approach Volume = $310 \text{ VPH} + 6 \text{ VPH} + 5 \text{ VPH} = 321 \text{ VPH}$
- Right Turn Lane Requirement, as per *VDOT Road Design Manual, Appendix F*:
None Warranted (please see Appendix E).

PM Peak Hour Analysis:

- 20 Vehicles per Hour Turning Right from Patrick Henry Drive
- Approach Volume = $310 \text{ VPH} + 20 \text{ VPH} + 13 \text{ VPH} = 343 \text{ VPH}$
- Right Turn Lane Requirement, as per *VDOT Road Design Manual, Appendix F*:
None Warranted (please see Appendix E).

7. CONCLUSIONS

Based on the data collected, the assumptions made, and the potential site generated traffic, the results of the analysis are:

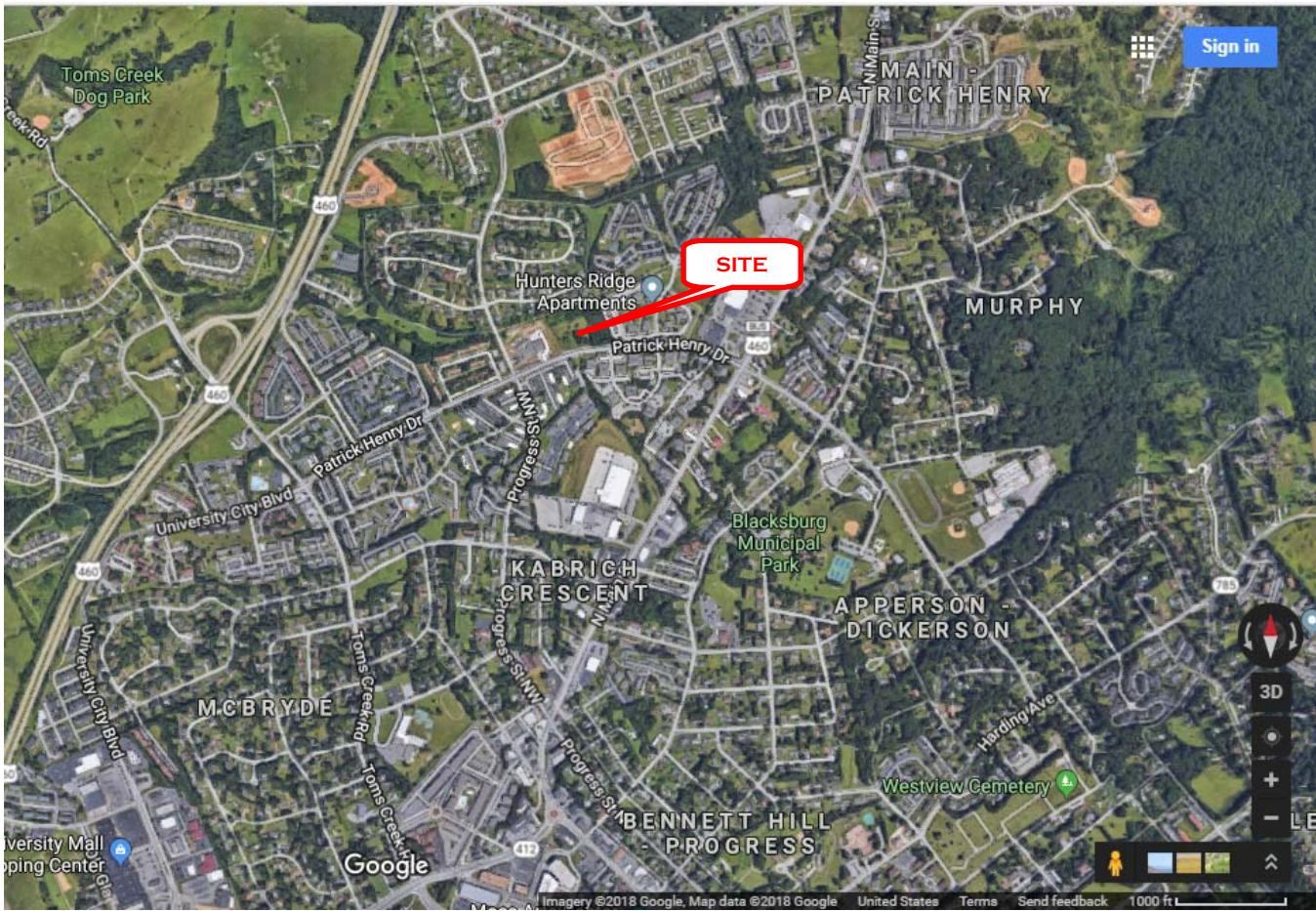
- the proposed project will increase traffic at the existing intersection and on the surrounding road network;
- traffic volume increases at the existing intersection will not significantly impact level of service or delay at the existing intersections;
- the existing intersection operates at an acceptable LOS with the projected background traffic volumes and will continue to do so with the site-generated traffic volumes included;
- no signal timing modifications are recommended at the existing intersection;
- no right turn lanes or tapers are warranted at either of the right-in, right-out entrances to the site.

Appendix A

Vicinity Map

Traffic Study
1222 Patrick Henry PRD – Blacksburg, VA
July 23, 2018





Traffic Study
1222 Patrick Henry PRD – Blacksburg, VA
July 23, 2018

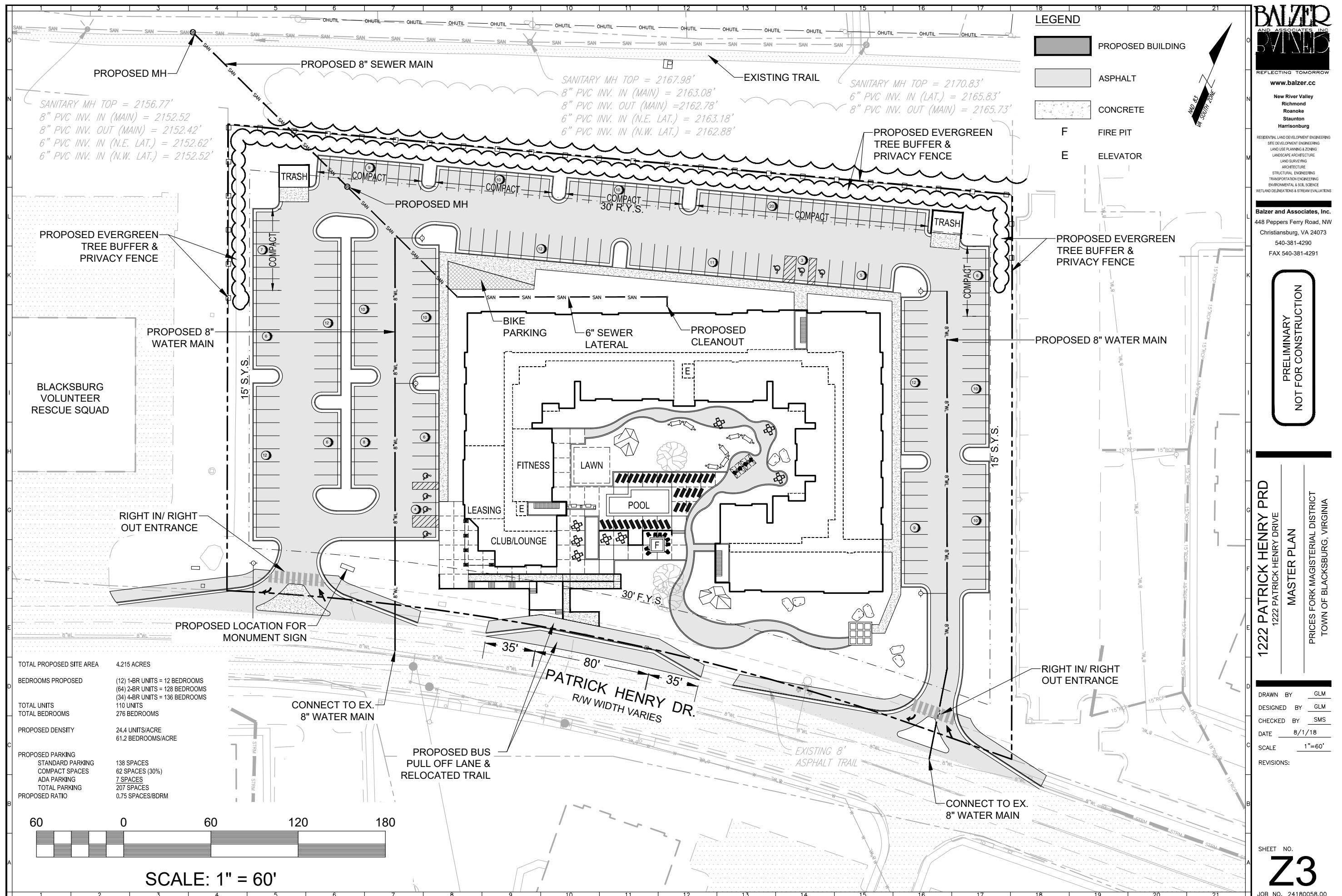
BALZER
BALZER ASSOCIATES INC.
GTNED
REFLECTING TOMORROW

Appendix B

Concept Plan

Traffic Study
1222 Patrick Henry PRD – Blacksburg, VA
July 23, 2018





Appendix C

Existing Traffic Data

Virginia Department of Transportation
Traffic Engineering Division

2017

Annual Average Daily Traffic Volume Estimates By Section of Route
Town of Blacksburg

Route	Length	AADT	QA	4Tire	Bus	Truck				QC	K Factor	Dir Factor	AAWDT	QW	Year
						2Axle	3+Axle	1Trail	2Trail						
Town of Blacksburg															
(F618) Holiday Lane	0.03	40	R											NA	05/08/2013
(F618) Holiday Lane	0.09	120	R											NA	05/08/2013
(2) University City Blvd	1.11	8800	G	98%	2%	0%	0%	0%	0%	C	0.106	0.555	9300	G	2017
(3) Givens Lane	1.57	1300	G	98%	1%	0%	0%	0%	0%	C	0.104	0.5	1300	G	2017
(4) Progress St	0.64	3800	G	98%	0%	1%	0%	0%	0%	F	0.09	0.529	4000	G	2017
(4) Progress St	0.51	1100	G	98%	0%	1%	0%	0%	0%	C	0.109	0.759	1200	G	2017
(4) Progress St	0.01	250	G	98%	0%	1%	0%	0%	0%	F	0.153	0.507	270	G	2017
(5) Clay St	0.92	2700	G	99%	0%	0%	0%	0%	0%	C	0.101	0.63	2900	G	2017
(3150) Airport Rd	0.23	5500	G	99%	0%	0%	0%	0%	0%	F	0.119	0.620	5800	G	2017
(3150) Country Club Dr	0.40	4300	G	99%	0%	0%	0%	0%	0%	C	0.119	0.620	4500	G	2017
(3151) Ellett Rd	0.71	5500	G	98%	1%	0%	0%	0%	0%	C	0.096	0.595	5800	G	2017
(3152) Prices Fork Rd	0.75	14000	G	98%	1%	1%	0%	0%	0%	C	0.133	0.509	15000	G	2017
(3152) Prices Fork Rd	0.36	17000	G	98%	1%	1%	0%	0%	0%	F	0.114	0.524	18000	G	2017
(3152) Prices Fork Rd	0.58	24000	G	98%	1%	1%	0%	0%	0%	F	0.1	0.558	26000	G	2017
(3153) Airport Rd	0.37	2000	G	98%	1%	1%	0%	0%	0%	C	0.129	0.629	2100	G	2017
(3154) Glade Rd	1.55	1100	G	98%	1%	1%	0%	0%	0%	C	0.111	0.61	1100	G	2017
(3154) Glade Rd	0.46	1500	G	99%	0%	1%	0%	0%	0%	C	0.103	0.584	1600	G	2017
(3154) Glade Rd	0.33	4500	G	99%	0%	1%	0%	0%	0%	F	0.104	0.65	4800	G	2017
(3156) Roanoke St	0.49	5100	G	98%	0%	2%	0%	0%	0%	C	0.1	0.568	5500	G	2017
(3156) Owen St	0.11	4400	G	98%	0%	2%	0%	0%	0%	C	0.104	0.567	4700	G	2017
(3156) Harding Ave	0.11	4600	G	97%	0%	2%	0%	0%	0%	C	0.105	0.587	4900	G	2017

Virginia Department of Transportation
Traffic Engineering Division

2017

Annual Average Daily Traffic Volume Estimates By Section of Route
Town of Blacksburg

Route	Length	AADT	QA	4Tire	Bus	Truck				QC	K Factor	Dir Factor	AAWDT	QW	Year
						2Axle	3+Axle	1Trail	2Trail						
Town of Blacksburg															
(3156) Harding Ave	0.66	3800	G	97%	0%	2%	0%	0%	0%	F	0.096	0.589	4000	G	2017
			From:	Cork Dr											
			To:	ECL Blacksburg											
(3159) Tom's Creek Rd	1.08	9400	G	98%	1%	0%	0%	1%	0%	C	0.093	0.502	10000	G	2017
			From:	Prices Fork Rd											
			To:	US 460											
(3164) Mt Tabor Rd	0.92	2900	G	98%	1%	0%	0%	0%	0%	C	0.101	0.569	3100	G	2017
			From:	US 460 Bus											
			To:	NCL Blacksburg											
(3165) Patrick Henry Dr	0.79	3800	G	99%	0%	0%	0%	0%	0%	C	0.117	0.527	4100	G	2017
			From:	Harding Ave											
			To:	Bus US 460											
(3165) Patrick Henry Dr	0.83	8900	G	99%	0%	0%	0%	0%	0%	F	0.098	0.522	9500	G	2017
			From:	Toms Creek Rd											
			To:	Progress St NW											
Alumni Mall	2800		G	88%	8%	3%	1%	1%	0%	C	0.106	0.512	2800	G	2017
			From:	Drillfield Dr											
			To:	Main St											
Apperson Dr	150		G								0.137	0.591	150	G	2017
			From:	Mason Drive											
			To:	Harding Avenue											
College Ave	NA			Otey St							NA			NA	
			To:	Draper Rd											
Commuter Lot Entrance	4100		G	99%	0%	1%	0%	0%	0%	C	0.119	0.82	4100	G	2017
			From:	Prices Fork Rd											
			To:	Commuter Lot											
Country Club Dr	640		G	98%	0%	2%	0%	0%	0%	C	0.151	0.51	640	G	2017
			From:	Dead End											
			To:	Airport Rd											
County Club Dr	4200		G	100%	0%	0%	0%	0%	0%	C	0.126	0.6	4200	G	2017
			From:	Draper Rd											
			To:	US 460 Main St											
Draper Rd	240		G								0.172		260	G	2017
			From:	Country Club Dr											
			To:	Airport Rd											
Drillfield Dr - In front of Price Hall	2300		G	95%	2%	2%	0%	0%	0%	C	0.114	0.921	2300	G	2017
			From:	West Campus Dr											
			To:	Kent St											
Drillfield Dr - In front of Williams Hall	NA			Stanger St							NA			NA	
			To:	West Campus Dr											
Duckpond Dr	6600		G	99%	0%	0%	1%	0%	0%	C	0.126	0.752	6600	G	2017
			From:	Southgate Dr											
			To:	Washington St											
Duckpond Dr	4700		G	99%	0%	0%	1%	0%	0%	C	0.098	0.517	4700	G	2017
			From:	Oak Ln											
			To:	West Campus Dr											
E Clay St	3200		G	99%	0%	0%	0%	0%	0%	F	0.084	0.589	3500	G	2017
			From:	C8US 460											
			To:	Dead End											
Edgewood Lane	290		G								0.102	0.607	290	G	2017
			From:	Preston Ave											
			To:	S Draper Rd											
Entrance to VT Inn & VT Visitor C	1600		G	97%	0%	1%	3%	0%	0%	C	0.129	0.781	1600	G	2017
			From:	Prices Fork Rd											
			To:	Entrance Split											

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Groups Printed- Car

Start Time	Progress St Southbound					Patrick Henry Dr Westbound					Progress St Northbound					Patrick Henry Dr Eastbound					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
08:00 AM	6	6	1	3	16	0	41	0	0	41	6	2	3	0	11	5	39	3	0	47	115
08:15 AM	7	7	3	0	17	0	49	0	0	49	1	1	2	3	7	3	33	3	0	39	112
08:30 AM	15	12	3	1	31	0	62	8	0	70	2	1	6	2	11	4	35	0	4	43	155
08:45 AM	19	11	2	0	32	0	85	5	1	91	3	3	4	2	12	3	51	1	1	56	191
Total	47	36	9	4	96	0	237	13	1	251	12	7	15	7	41	15	158	7	5	185	573
09:00 AM	9	5	2	0	16	3	51	2	0	56	2	5	6	1	14	4	46	3	0	53	139
09:15 AM	13	2	2	0	17	0	34	3	0	37	5	5	3	2	15	7	37	7	0	51	120
09:30 AM	8	0	0	0	8	1	46	4	0	51	4	0	3	2	9	4	43	3	1	51	119
09:45 AM	4	1	2	0	7	2	66	2	0	70	3	3	2	2	10	3	47	7	0	57	144
Total	34	8	6	0	48	6	197	11	0	214	14	13	14	7	48	18	173	20	1	212	522
Grand Total	81	44	15	4	144	6	434	24	1	465	26	20	29	14	89	33	331	27	6	397	1095
Apprch %	56.2	30.6	10.4	2.8		1.3	93.3	5.2	0.2		29.2	22.5	32.6	15.7		8.3	83.4	6.8	1.5		
Total %	7.4	4	1.4	0.4	13.2	0.5	39.6	2.2	0.1	42.5	2.4	1.8	2.6	1.3	8.1	3	30.2	2.5	0.5	36.3	

Start Time	Progress St Southbound					Patrick Henry Dr Westbound					Progress St Northbound					Patrick Henry Dr Eastbound					Int. Total
	Right	Thru	Left	App. Total		Right	Thru	Left	App. Total		Right	Thru	Left	App. Total		Right	Thru	Left	App. Total		Int. Total
Peak Hour Analysis From 08:00 AM to 09:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 08:30 AM																					
08:30 AM	15	12	3	30		0	62	8	70		2	1	6	9		4	35	0	39		148
08:45 AM	19	11	2	32		0	85	5	90		3	3	4	10		3	51	1	55		187
09:00 AM	9	5	2	16		3	51	2	56		2	5	6	13		4	46	3	53		138
09:15 AM	13	2	2	17		0	34	3	37		5	5	3	13		7	37	7	51		118
Total Volume	56	30	9	95		3	232	18	253		12	14	19	45		18	169	11	198		591
% App. Total	58.9	31.6	9.5			1.2	91.7	7.1			26.7	31.1	42.2			9.1	85.4	5.6			
PHF	.737	.625	.750	.742		.250	.682	.563	.703		.600	.700	.792	.865		.643	.828	.393	.900		.790

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Groups Printed- Truck

Start Time	Progress St Southbound					Patrick Henry Dr Westbound					Progress St Northbound					Patrick Henry Dr Eastbound					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
08:00 AM	0	0	0	0	0	0	0	2	0	2	0	0	2	0	2	2	2	0	0	4	8
08:15 AM	0	0	0	0	0	0	0	1	0	1	0	0	1	0	1	3	1	0	0	5	7
08:30 AM	0	2	0	0	2	0	1	2	0	3	0	0	2	0	2	2	0	0	0	2	9
08:45 AM	0	0	0	0	0	0	2	2	0	4	0	0	1	0	1	1	2	0	0	0	8
Total	0	2	0	0	2	0	3	7	0	10	0	0	6	0	6	6	7	1	0	14	32
09:00 AM	0	0	0	0	0	0	2	2	0	4	0	0	2	0	2	2	0	1	0	3	9
09:15 AM	0	0	0	0	0	0	3	1	0	4	0	0	1	0	1	1	1	0	0	2	7
09:30 AM	0	0	0	0	0	0	0	2	0	2	0	0	2	0	2	2	1	0	0	3	7
09:45 AM	0	0	0	0	0	0	0	1	0	1	0	0	1	0	1	2	1	1	0	4	6
Total	0	0	0	0	0	0	5	6	0	11	0	0	6	0	6	7	3	2	0	12	29
Grand Total	0	2	0	0	2	0	8	13	0	21	0	0	12	0	12	13	10	3	0	26	61
Apprch %	0	100	0	0	0	0	38.1	61.9	0	0	0	0	100	0	0	50	38.5	11.5	0	0	
Total %	0	3.3	0	0	3.3	0	13.1	21.3	0	34.4	0	0	19.7	0	0	19.7	21.3	16.4	4.9	0	42.6

Start Time	Progress St Southbound					Patrick Henry Dr Westbound					Progress St Northbound					Patrick Henry Dr Eastbound					Int. Total
	Right	Thru	Left	App. Total		Right	Thru	Left	App. Total		Right	Thru	Left	App. Total		Right	Thru	Left	App. Total		Int. Total
Peak Hour Analysis From 08:00 AM to 09:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 08:15 AM																					
08:15 AM	0	0	0	0	0	0	0	1	1	1	0	0	1	1	1	3	1	5	7		
08:30 AM	0	2	0	2	2	0	1	2	3	0	0	2	2	2	0	0	0	2	9		
08:45 AM	0	0	0	0	0	0	2	2	4	0	0	1	1	1	1	2	0	3	8		
09:00 AM	0	0	0	0	0	0	2	2	4	0	0	2	2	2	0	1	1	3	9		
Total Volume	0	2	0	2		0	5	7	12		0	0	6	6	6	5	2	13	33		
% App. Total	0	100	0	0		0	41.7	58.3			0	0	100	46.2	38.5	15.4					
PHF	.000	.250	.000	.250		.000	.625	.875	.750		.000	.000	.750	.750	.750	.417	.500	.650	.917		

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Start Time	Progress St Southbound					Patrick Henry Dr Westbound					Progress St Northbound					Patrick Henry Dr Eastbound					
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
08:00 AM	6	6	1	3	16	0	41	2	0	43	6	2	5	0	13	7	41	3	0	51	123
08:15 AM	7	7	3	0	17	0	49	1	0	50	1	1	3	3	8	4	36	4	0	44	119
08:30 AM	15	14	3	1	33	0	63	10	0	73	2	1	8	2	13	6	35	0	4	45	164
08:45 AM	19	11	2	0	32	0	87	7	1	95	3	3	5	2	13	4	53	1	1	59	199
Total	47	38	9	4	98	0	240	20	1	261	12	7	21	7	47	21	165	8	5	199	605
09:00 AM	9	5	2	0	16	3	53	4	0	60	2	5	8	1	16	6	46	4	0	56	148
09:15 AM	13	2	2	0	17	0	37	4	0	41	5	5	4	2	16	8	38	7	0	53	127
09:30 AM	8	0	0	0	8	1	46	6	0	53	4	0	5	2	11	6	44	3	1	54	126
09:45 AM	4	1	2	0	7	2	66	3	0	71	3	3	3	2	11	5	48	8	0	61	150
Total	34	8	6	0	48	6	202	17	0	225	14	13	20	7	54	25	176	22	1	224	551
Grand Total	81	46	15	4	146	6	442	37	1	486	26	20	41	14	101	46	341	30	6	423	1156
Apprch %	55.5	31.5	10.3	2.7		1.2	90.9	7.6	0.2		25.7	19.8	40.6	13.9		10.9	80.6	7.1	1.4		
Total %	7	4	1.3	0.3	12.6	0.5	38.2	3.2	0.1	42	2.2	1.7	3.5	1.2	8.7	4	29.5	2.6	0.5	36.6	

Start Time	Progress St Southbound				Patrick Henry Dr Westbound				Progress St Northbound				Patrick Henry Dr Eastbound				
	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 08:00 AM to 09:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 08:30 AM																	
08:30 AM	15	14	3	32	0	63	10	73	2	1	8	11	6	35	0	41	157
08:45 AM	19	11	2	32	0	87	7	94	3	3	5	11	4	53	1	58	195
09:00 AM	9	5	2	16	3	53	4	60	2	5	8	15	6	46	4	56	147
09:15 AM	13	2	2	17	0	37	4	41	5	5	4	14	8	38	7	53	125
Total Volume	56	32	9	97	3	240	25	268	12	14	25	51	24	172	12	208	624
% App. Total	57.7	33	9.3		1.1	89.6	9.3		23.5	27.5	49		11.5	82.7	5.8		
PHF	.737	.571	.750	.758	.250	.690	.625	.713	.600	.700	.781	.850	.750	.811	.429	.897	.800

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Groups Printed- Car

Start Time	Progress St Southbound					Patrick Henry Dr Westbound					Progress St Northbound					Patrick Henry Dr Eastbound					
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
04:30 PM	3	2	0	1	6	4	71	10	0	85	10	3	12	0	25	3	71	6	1	81	197
04:45 PM	3	3	1	1	8	4	80	12	1	97	9	1	9	3	22	8	63	8	1	80	207
Total	6	5	1	2	14	8	151	22	1	182	19	4	21	3	47	11	134	14	2	161	404
05:00 PM	1	3	2	0	6	1	105	16	0	122	7	7	17	2	33	8	55	6	0	69	230
05:15 PM	8	1	1	4	14	4	83	8	0	95	20	10	15	0	45	14	117	15	2	148	302
05:30 PM	8	4	0	1	13	3	108	12	1	124	19	6	16	2	43	7	92	15	0	114	294
05:45 PM	3	3	1	0	7	4	87	10	1	102	10	12	11	3	36	15	86	24	1	126	271
Total	20	11	4	5	40	12	383	46	2	443	56	35	59	7	157	44	350	60	3	457	1097
06:00 PM	5	3	3	2	13	2	72	7	0	81	9	8	11	0	28	11	98	14	1	124	246
06:15 PM	3	3	1	0	7	3	77	9	1	90	10	3	9	2	24	15	71	7	1	94	215
Grand Total	34	22	9	9	74	25	683	84	4	796	94	50	100	12	256	81	653	95	7	836	1962
Apprch %	45.9	29.7	12.2	12.2		3.1	85.8	10.6	0.5		36.7	19.5	39.1	4.7		9.7	78.1	11.4	0.8		
Total %	1.7	1.1	0.5	0.5	3.8	1.3	34.8	4.3	0.2	40.6	4.8	2.5	5.1	0.6	13	4.1	33.3	4.8	0.4	42.6	

Start Time	Progress St Southbound				Patrick Henry Dr Westbound				Progress St Northbound				Patrick Henry Dr Eastbound				
	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 04:30 PM to 06:15 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 05:15 PM																	
05:15 PM	8	1	1	10	4	83	8	95	20	10	15	45	14	117	15	146	296
05:30 PM	8	4	0	12	3	108	12	123	19	6	16	41	7	92	15	114	290
05:45 PM	3	3	1	7	4	87	10	101	10	12	11	33	15	86	24	125	266
06:00 PM	5	3	3	11	2	72	7	81	9	8	11	28	11	98	14	123	243
Total Volume	24	11	5	40	13	350	37	400	58	36	53	147	47	393	68	508	1095
% App. Total	60	27.5	12.5		3.2	87.5	9.2		39.5	24.5	36.1		9.3	77.4	13.4		
PHF	.750	.688	.417	.833	.813	.810	.771	.813	.725	.750	.828	.817	.783	.840	.708	.870	.925

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Groups Printed- Truck

Start Time	Progress St Southbound					Patrick Henry Dr Westbound					Progress St Northbound					Patrick Henry Dr Eastbound					
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
04:30 PM	1	0	0	0	1	0	1	1	0	2	0	0	2	0	2	2	1	0	0	3	8
04:45 PM	0	0	0	0	0	0	0	1	0	1	0	0	1	0	1	0	0	0	0	1	3
Total	1	0	0	0	1	0	1	2	0	3	0	0	3	0	3	1	0	0	4	11	
05:00 PM	0	0	0	0	0	0	0	1	0	1	0	0	3	0	3	2	0	0	0	2	6
05:15 PM	0	0	0	0	0	0	2	1	0	3	0	0	1	0	1	1	1	0	0	2	6
05:30 PM	0	0	0	0	0	0	1	1	0	2	0	0	2	0	2	1	0	0	0	1	5
05:45 PM	0	0	0	0	0	0	0	1	0	1	0	0	1	0	1	1	0	0	0	1	3
Total	0	0	0	0	0	0	3	4	0	7	0	0	7	0	7	5	1	0	0	6	20
06:00 PM	0	0	0	0	0	0	0	1	0	1	0	0	1	0	1	1	0	0	0	1	3
06:15 PM	0	0	0	0	0	0	0	1	0	1	0	0	1	0	1	1	0	0	0	1	3
Grand Total	1	0	0	0	1	0	4	8	0	12	0	0	12	0	12	10	2	0	0	12	37
Apprch %	100	0	0	0	1	0	33.3	66.7	0	12	0	0	100	0	12	83.3	16.7	0	0	0	12
Total %	2.7	0	0	0	2.7	0	10.8	21.6	0	32.4	0	0	32.4	0	32.4	27	5.4	0	0	32.4	

Start Time	Progress St Southbound				Patrick Henry Dr Westbound				Progress St Northbound				Patrick Henry Dr Eastbound								
	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total				
Peak Hour Analysis From 04:30 PM to 06:15 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:30 PM																					
04:30 PM	1	0	0	1	0	1	1	2	0	0	2	2	2	1	0	3	8				
04:45 PM	0	0	0	0	0	0	1	1	0	0	1	1	1	0	0	1	3				
05:00 PM	0	0	0	0	0	0	1	1	0	0	3	3	2	0	0	2	6				
05:15 PM	0	0	0	0	0	2	1	3	0	0	1	1	1	0	0	2	6				
Total Volume	1	0	0	1	0	3	4	7	0	0	7	7	6	2	0	8	23				
% App. Total	100	0	0	0	0	42.9	57.1	0	0	100	0	75	25	0	0	0	23				
PHF	.250	.000	.000	.250	.000	.375	1.00	.583	.000	.000	.583	.583	.750	.500	.000	.667	.719				

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Start Time	Progress St Southbound					Patrick Henry Dr Westbound					Progress St Northbound					Patrick Henry Dr Eastbound					
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
04:30 PM	4	2	0	1	7	4	72	11	0	87	10	3	14	0	27	5	72	6	1	84	205
04:45 PM	3	3	1	1	8	4	80	13	1	98	9	1	10	3	23	9	63	8	1	81	210
Total	7	5	1	2	15	8	152	24	1	185	19	4	24	3	50	14	135	14	2	165	415
05:00 PM	1	3	2	0	6	1	105	17	0	123	7	7	20	2	36	10	55	6	0	71	236
05:15 PM	8	1	1	4	14	4	85	9	0	98	20	10	16	0	46	15	118	15	2	150	308
05:30 PM	8	4	0	1	13	3	109	13	1	126	19	6	18	2	45	8	92	15	0	115	299
05:45 PM	3	3	1	0	7	4	87	11	1	103	10	12	12	3	37	16	86	24	1	127	274
Total	20	11	4	5	40	12	386	50	2	450	56	35	66	7	164	49	351	60	3	463	1117
06:00 PM	5	3	3	2	13	2	72	8	0	82	9	8	12	0	29	12	98	14	1	125	249
06:15 PM	3	3	1	0	7	3	77	10	1	91	10	3	10	2	25	16	71	7	1	95	218
Grand Total	35	22	9	9	75	25	687	92	4	808	94	50	112	12	268	91	655	95	7	848	1999
Apprch %	46.7	29.3	12	12		3.1	85	11.4	0.5		35.1	18.7	41.8	4.5		10.7	77.2	11.2	0.8		
Total %	1.8	1.1	0.5	0.5	3.8	1.3	34.4	4.6	0.2	40.4	4.7	2.5	5.6	0.6	13.4	4.6	32.8	4.8	0.4	42.4	

	Progress St Southbound				Patrick Henry Dr Westbound				Progress St Northbound				Patrick Henry Dr Eastbound								
	Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total			
Peak Hour Analysis From 04:30 PM to 06:15 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:15 PM																					
05:15 PM	8	1	1	10	10	4	85	9	98	20	10	16	46	15	118	15	148	302			
05:30 PM	8	4	0	12	12	3	109	13	125	19	6	18	43	8	92	15	115	295			
05:45 PM	3	3	1	7	7	4	87	11	102	10	12	12	34	16	86	24	126	269			
06:00 PM	5	3	3	11	11	2	72	8	82	9	8	12	29	12	98	14	124	246			
Total Volume	24	11	5	40	40	13	353	41	407	58	36	58	152	51	394	68	513	1112			
% App. Total	60	27.5	12.5			3.2	86.7	10.1		38.2	23.7	38.2		9.9	76.8	13.3					
PHF	.750	.688	.417	.833		.813	.810	.788	.814	.725	.750	.806	.826	.797	.835	.708	.867	.921			

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Groups Printed- Car

Start Time	Progress St Southbound					Patrick Henry Dr Westbound					Progress St Northbound					Patrick Henry Dr Eastbound					
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
07:30 AM	24	4	0	7	35	0	75	3	0	78	1	1	12	1	15	3	36	1	0	40	168
07:45 AM	24	1	0	1	26	1	54	5	1	61	7	0	2	1	10	5	46	5	0	56	153
Total	48	5	0	8	61	1	129	8	1	139	8	1	14	2	25	8	82	6	0	96	321
08:00 AM	8	6	3	1	18	0	53	3	0	56	5	3	5	0	13	7	40	5	0	52	139
08:15 AM	6	9	0	0	15	2	44	4	0	50	3	1	3	2	9	2	38	2	1	43	117
08:30 AM	15	8	1	0	24	1	67	2	0	70	2	1	6	1	10	6	44	3	0	53	157
08:45 AM	13	12	0	0	25	1	70	7	0	78	1	5	4	5	15	5	52	6	0	63	181
Total	42	35	4	1	82	4	234	16	0	254	11	10	18	8	47	20	174	16	1	211	594
09:00 AM	11	14	1	0	26	2	74	6	0	82	5	3	5	3	16	3	37	4	0	44	168
09:15 AM	5	3	0	0	8	0	59	5	1	65	2	2	7	0	11	3	39	5	2	49	133
09:30 AM	8	4	0	0	12	0	34	5	0	39	8	2	5	0	15	3	33	1	1	38	104
09:45 AM	11	3	2	1	17	2	34	6	1	43	4	1	4	0	9	3	41	5	0	49	118
Total	35	24	3	1	63	4	201	22	2	229	19	8	21	3	51	12	150	15	3	180	523
10:00 AM	10	5	2	2	19	2	43	6	0	51	6	4	4	0	14	4	31	6	2	43	127
10:15 AM	6	1	2	0	9	3	41	0	0	44	5	2	7	4	18	2	38	4	0	44	115
10:30 AM	3	0	1	0	4	1	54	7	0	62	7	0	7	2	16	8	41	9	2	60	142
10:45 AM	8	13	0	0	21	4	58	5	0	67	13	1	7	0	21	9	52	8	0	69	178
Total	27	19	5	2	53	10	196	18	0	224	31	7	25	6	69	23	162	27	4	216	562
11:00 AM	3	4	1	0	8	1	41	5	0	47	7	3	2	3	15	9	50	6	2	67	137
11:15 AM	7	1	0	0	8	1	45	5	0	51	6	3	3	1	13	4	45	5	0	54	126
Grand Total	162	88	13	12	275	21	846	74	3	944	82	32	83	23	220	76	663	75	10	824	2263
Apprch %	58.9	32	4.7	4.4		2.2	89.6	7.8	0.3		37.3	14.5	37.7	10.5		9.2	80.5	9.1	1.2		
Total %	7.2	3.9	0.6	0.5	12.2	0.9	37.4	3.3	0.1	41.7	3.6	1.4	3.7	1	9.7	3.4	29.3	3.3	0.4	36.4	

Start Time	Progress St Southbound					Patrick Henry Dr Westbound					Progress St Northbound					Patrick Henry Dr Eastbound					
	Right	Thru	Left	App. Total		Right	Thru	Left	App. Total		Right	Thru	Left	App. Total		Right	Thru	Left	App. Total		Int. Total
Peak Hour Analysis From 07:30 AM to 11:15 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 08:30 AM																					
08:30 AM	15	8	1	24		1	67	2	70		2	1	6	9		6	44	3	53		156
08:45 AM	13	12	0	25		1	70	7	78		1	5	4	10		5	52	6	63		176
09:00 AM	11	14	1	26		2	74	6	82		5	3	5	13		3	37	4	44		165
09:15 AM	5	3	0	8		0	59	5	64		2	2	7	11		3	39	5	47		130
Total Volume	44	37	2	83		4	270	20	294		10	11	22	43		17	172	18	207		627
% App. Total	53	44.6	2.4			1.4	91.8	6.8			23.3	25.6	51.2			8.2	83.1	8.7			
PHF	.733	.661	.500	.798		.500	.912	.714	.896		.500	.550	.786	.827		.708	.827	.750	.821		.891

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Groups Printed- Truck

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	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
07:30 AM	1	0	0	0	1	0	0	3	0	3	0	0	2	0	2	2	2	0	0	4	10
07:45 AM	0	0	0	0	0	0	0	1	0	1	0	0	1	0	1	1	3	0	0	4	6
Total	1	0	0	0	1	0	0	4	0	4	0	0	3	0	3	3	5	0	0	8	16
08:00 AM	1	0	0	0	1	1	1	2	0	4	0	0	2	0	2	2	3	0	0	5	12
08:15 AM	0	0	0	0	0	0	1	1	0	2	0	0	2	0	2	2	1	1	0	4	8
08:30 AM	0	1	0	0	1	0	2	2	0	4	0	0	3	0	3	3	1	0	0	4	12
08:45 AM	0	0	0	0	0	0	0	2	0	2	0	0	1	0	1	1	1	0	0	2	5
Total	1	1	0	0	2	1	4	7	0	12	0	0	8	0	8	8	6	1	0	15	37
09:00 AM	0	0	0	0	0	0	0	2	0	2	0	0	2	0	2	2	2	0	0	4	8
09:15 AM	0	0	0	0	0	0	0	1	0	1	0	0	2	0	2	2	3	1	0	6	9
09:30 AM	0	0	0	0	0	0	1	2	0	3	0	0	2	0	2	2	1	1	0	4	9
09:45 AM	0	0	1	0	1	0	1	2	0	3	0	0	2	0	2	1	2	0	0	3	9
Total	0	0	1	0	1	0	2	7	0	9	0	0	8	0	8	7	8	2	0	17	35
10:00 AM	1	0	0	0	1	0	0	2	0	2	0	0	2	0	2	2	2	0	0	4	9
10:15 AM	0	0	0	0	0	0	2	1	0	3	1	0	1	0	2	1	2	1	0	4	9
10:30 AM	0	0	0	0	0	0	0	2	0	2	1	0	2	0	3	2	0	0	0	2	7
10:45 AM	0	0	0	0	0	0	1	1	0	2	0	0	1	0	1	1	1	1	0	3	6
Total	1	0	0	0	1	0	3	6	0	9	2	0	6	0	8	6	5	2	0	13	31
11:00 AM	1	0	0	0	1	0	0	2	0	2	0	0	2	0	2	2	0	0	0	2	7
11:15 AM	0	0	0	0	0	0	1	1	0	2	0	0	1	0	1	1	1	0	0	2	5
Grand Total	4	1	1	0	6	1	10	27	0	38	2	0	28	0	27	25	5	0	57	131	
Apprch %	66.7	16.7	16.7	0		2.6	26.3	71.1	0		6.7	0	93.3	0		47.4	43.9	8.8	0		
Total %	3.1	0.8	0.8	0	4.6	0.8	7.6	20.6	0	29	1.5	0	21.4	0	22.9	20.6	19.1	3.8	0	43.5	

Start Time	Progress St Southbound				Patrick Henry Dr Westbound				Progress St Northbound				Patrick Henry Dr Eastbound				Int. Total
	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 07:30 AM to 11:15 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:45 AM																	
07:45 AM	0	0	0	0	0	0	1	1	0	0	0	1	1	3	0	4	6
08:00 AM	1	0	0	1	1	1	2	4	0	0	2	2	2	3	0	5	12
08:15 AM	0	0	0	0	0	0	1	1	0	0	0	2	2	1	1	4	8
08:30 AM	0	1	0	1	0	2	2	4	0	0	3	3	3	1	0	4	12
Total Volume	1	1	0	2	1	4	6	11	0	0	8	8	8	1	17		38
% App. Total	50	50	0		9.1	36.4	54.5		0	0	100		47.1	47.1	5.9		
PHF	.250	.250	.000	.500	.250	.500	.750	.688	.000	.000	.667	.667	.667	.250	.850		.792

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Start Time	Progress St Southbound					Patrick Henry Dr Westbound					Progress St Northbound					Patrick Henry Dr Eastbound					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
07:30 AM	25	4	0	7	36	0	75	6	0	81	1	1	14	1	17	5	38	1	0	44	178
07:45 AM	24	1	0	1	26	1	54	6	1	62	7	0	3	1	11	6	49	5	0	60	159
Total	49	5	0	8	62	1	129	12	1	143	8	1	17	2	28	11	87	6	0	104	337
08:00 AM	9	6	3	1	19	1	54	5	0	60	5	3	7	0	15	9	43	5	0	57	151
08:15 AM	6	9	0	0	15	2	45	5	0	52	3	1	5	2	11	4	39	3	1	47	125
08:30 AM	15	9	1	0	25	1	69	4	0	74	2	1	9	1	13	9	45	3	0	57	169
08:45 AM	13	12	0	0	25	1	70	9	0	80	1	5	5	5	16	6	53	6	0	65	186
Total	43	36	4	1	84	5	238	23	0	266	11	10	26	8	55	28	180	17	1	226	631
09:00 AM	11	14	1	0	26	2	74	8	0	84	5	3	7	3	18	5	39	4	0	48	176
09:15 AM	5	3	0	0	8	0	59	6	1	66	2	2	9	0	13	5	42	6	2	55	142
09:30 AM	8	4	0	0	12	0	35	7	0	42	8	2	7	0	17	5	34	2	1	42	113
09:45 AM	11	3	3	1	18	2	35	8	1	46	4	1	6	0	11	4	43	5	0	52	127
Total	35	24	4	1	64	4	203	29	2	238	19	8	29	3	59	19	158	17	3	197	558
10:00 AM	11	5	2	2	20	2	43	8	0	53	6	4	6	0	16	6	33	6	2	47	136
10:15 AM	6	1	2	0	9	3	43	1	0	47	6	2	8	4	20	3	40	5	0	48	124
10:30 AM	3	0	1	0	4	1	54	9	0	64	8	0	9	2	19	10	41	9	2	62	149
10:45 AM	8	13	0	0	21	4	59	6	0	69	13	1	8	0	22	10	53	9	0	72	184
Total	28	19	5	2	54	10	199	24	0	233	33	7	31	6	77	29	167	29	4	229	593
11:00 AM	4	4	1	0	9	1	41	7	0	49	7	3	4	3	17	11	50	6	2	69	144
11:15 AM	7	1	0	0	8	1	46	6	0	53	6	3	4	1	14	5	46	5	0	56	131
Grand Total	166	89	14	12	281	22	856	101	3	982	84	32	111	23	250	103	688	80	10	881	2394
Apprch %	59.1	31.7	5	4.3		2.2	87.2	10.3	0.3		33.6	12.8	44.4	9.2		11.7	78.1	9.1	1.1		
Total %	6.9	3.7	0.6	0.5	11.7	0.9	35.8	4.2	0.1	41	3.5	1.3	4.6	1	10.4	4.3	28.7	3.3	0.4	36.8	

Start Time	Progress St Southbound					Patrick Henry Dr Westbound					Progress St Northbound					Patrick Henry Dr Eastbound					Int. Total
	Right	Thru	Left	App. Total		Right	Thru	Left	App. Total		Right	Thru	Left	App. Total		Right	Thru	Left	App. Total		Int. Total
Peak Hour Analysis From 07:30 AM to 11:15 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 08:30 AM																					
08:30 AM	15	9	1	25		1	69	4	74		2	1	9	12		9	45	3	57		168
08:45 AM	13	12	0	25		1	70	9	80		1	5	5	11		6	53	6	65		181
09:00 AM	11	14	1	26		2	74	8	84		5	3	7	15		5	39	4	48		173
09:15 AM	5	3	0	8		0	59	6	65		2	2	9	13		5	42	6	53		139
Total Volume	44	38	2	84		4	272	27	303		10	11	30	51		25	179	19	223		661
% App. Total	52.4	45.2	2.4			1.3	89.8	8.9			19.6	21.6	58.8			11.2	80.3	8.5			
PHF	.733	.679	.500	.808		.500	.919	.750	.902		.500	.550	.833	.850		.694	.844	.792	.858		.913

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Groups Printed- Car

Start Time	Progress St Southbound					Patrick Henry Dr Westbound					Progress St Northbound					Patrick Henry Dr Eastbound					Int. Total	
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total	
03:00 PM	5	6	2	0	13	2	49	14	0	65	5	3	5	5	18	13	64	6	1	84	180	
03:15 PM	8	4	2	0	14	0	71	11	0	82	10	5	8	3	26	9	56	8	1	74	196	
03:30 PM	5	3	2	0	10	2	87	12	1	102	7	3	7	1	18	7	74	7	2	90	220	
03:45 PM	3	2	2	2	9	6	94	3	0	103	9	9	14	5	37	9	74	7	0	90	239	
Total	21	15	8	2	46	10	301	40	1	352	31	20	34	14	99	38	268	28	4	338	835	
04:00 PM	3	4	4	0	11	2	86	7	0	95	12	1	10	0	23	11	56	10	1	78	207	
04:15 PM	5	4	2	1	12	5	81	5	2	93	8	4	10	0	22	9	77	8	1	95	222	
04:30 PM	10	5	1	1	17	4	94	9	0	107	10	4	12	2	28	14	71	4	0	89	241	
04:45 PM	7	10	1	3	21	1	98	17	1	117	10	10	7	4	31	7	80	7	0	94	263	
Total	25	23	8	5	61	12	359	38	3	412	40	19	39	6	104	41	284	29	2	356	933	
05:00 PM	5	3	0	0	8	5	110	11	0	126	21	6	15	7	49	18	94	8	0	120	303	
05:15 PM	7	4	1	3	15	3	106	11	0	120	15	4	18	5	42	8	78	15	0	101	278	
05:30 PM	6	4	4	1	15	4	97	10	1	112	16	9	16	2	43	12	98	15	1	126	296	
05:45 PM	10	5	2	3	20	0	84	10	0	94	19	6	15	1	41	14	105	14	2	135	290	
Total	28	16	7	7	58	12	397	42	1	452	71	25	64	15	175	52	375	52	3	482	1167	
06:00 PM	3	3	2	3	11	3	80	11	0	94	13	7	14	3	37	11	83	12	0	106	248	
06:15 PM	10	4	0	0	14	5	74	13	0	92	16	9	11	0	36	10	63	11	0	84	226	
06:30 PM	5	4	3	1	13	5	65	17	1	88	21	7	13	3	44	20	79	8	1	108	253	
06:45 PM	7	3	3	1	14	2	62	10	0	74	9	7	12	1	29	9	85	13	2	109	226	
Total	25	14	8	5	52	15	281	51	1	348	59	30	50	7	146	50	310	44	3	407	953	
Grand Total	99	68	31	19	217	49	1338	171	6	1564	201	94	187	42	524	181	1237	153	12	1583	3888	
Apprch %	45.6	31.3	14.3	8.8		3.1	85.5	10.9	0.4		38.4	17.9	35.7	8		11.4	78.1	9.7	0.8			
Total %	2.5	1.7	0.8	0.5		5.6	1.3	34.4	4.4	0.2		40.2	5.2	2.4	4.8	1.1	13.5	4.7	31.8	3.9	0.3	40.7

Start Time	Progress St Southbound					Patrick Henry Dr Westbound					Progress St Northbound					Patrick Henry Dr Eastbound					Int. Total
	Right	Thru	Left	App. Total		Right	Thru	Left	App. Total		Right	Thru	Left	App. Total		Right	Thru	Left	App. Total		Int. Total
Peak Hour Analysis From 03:00 PM to 06:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:00 PM																					
05:00 PM	5	3	0	8		5	110	11	126		21	6	15	42		18	94	8	120		296
05:15 PM	7	4	1	12		3	106	11	120		15	4	18	37		8	78	15	101		270
05:30 PM	6	4	4	14		4	97	10	111		16	9	16	41		12	98	15	125		291
05:45 PM	10	5	2	17		0	84	10	94		19	6	15	40		14	105	14	133		284
Total Volume	28	16	7	51		12	397	42	451		71	25	64	160		52	375	52	479		1141
% App. Total	54.9	31.4	13.7			2.7	88	9.3			44.4	15.6	40			10.9	78.3	10.9			
PHF	.700	.800	.438	.750		.600	.902	.955	.895		.845	.694	.889	.952		.722	.893	.867	.900		.964

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Groups Printed- Truck

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	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
03:00 PM	0	0	0	0	0	0	1	1	0	2	0	0	2	0	2	2	1	0	0	3	7
03:15 PM	1	1	0	0	2	0	2	2	0	4	0	0	1	0	1	1	1	1	0	3	10
03:30 PM	0	1	0	0	1	0	0	1	0	1	0	0	2	0	2	1	0	0	0	1	5
03:45 PM	0	0	0	0	0	0	1	1	0	2	1	1	1	0	3	3	0	0	0	3	8
Total	1	2	0	0	3	0	4	5	0	9	1	1	6	0	8	7	2	1	0	10	30
04:00 PM	0	0	0	0	0	0	1	1	0	2	1	1	2	0	4	2	1	0	0	3	9
04:15 PM	0	0	0	0	0	0	0	1	0	1	0	0	1	0	1	2	2	0	0	4	6
04:30 PM	0	0	0	0	0	1	0	1	0	2	1	0	3	0	4	3	1	0	0	4	10
04:45 PM	0	1	0	0	1	0	2	1	0	3	0	0	2	0	2	1	3	0	0	4	10
Total	0	1	0	0	1	1	3	4	0	8	2	1	8	0	11	8	7	0	0	15	35
05:00 PM	0	0	0	0	0	0	2	1	0	3	1	0	1	0	2	2	0	0	0	2	7
05:15 PM	0	0	0	0	0	0	2	1	0	3	0	0	3	0	3	2	0	0	0	2	8
05:30 PM	0	0	0	0	0	0	5	1	0	6	0	0	2	0	2	2	0	0	0	2	10
05:45 PM	0	0	0	0	0	0	2	1	0	3	0	0	2	0	2	1	0	0	0	1	6
Total	0	0	0	0	0	0	11	4	0	15	1	0	8	0	9	7	0	0	0	7	31
06:00 PM	0	0	0	0	0	0	0	1	0	1	0	0	2	0	2	1	0	0	0	1	4
06:15 PM	0	0	0	0	0	0	1	1	0	2	0	0	1	0	1	1	0	0	0	1	4
06:30 PM	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	1	1	0	0	2	3
06:45 PM	0	1	0	0	1	0	1	0	0	1	0	0	1	0	1	0	2	0	0	2	5
Total	0	1	0	0	1	0	2	3	0	5	0	0	4	0	4	3	3	0	0	6	16
Grand Total	1	4	0	0	5	1	20	16	0	37	4	2	26	0	32	25	12	1	0	38	112
Apprch %	20	80	0	0	2.7	54.1	43.2	0	12.5	6.2	81.2	0	65.8	31.6	2.6	0	0	0	0	0	
Total %	0.9	3.6	0	0	4.5	0.9	17.9	14.3	0	33	3.6	1.8	23.2	0	28.6	22.3	10.7	0.9	0	33.9	

Start Time	Progress St Southbound					Patrick Henry Dr Westbound					Progress St Northbound					Patrick Henry Dr Eastbound				
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total
Peak Hour Analysis From 03:00 PM to 06:45 PM - Peak 1 of 1																				
Peak Hour for Entire Intersection Begins at 04:00 PM																				
04:00 PM	0	0	0	0	0	0	1	1	2	1	1	2	4	2	1	0	3	9		
04:15 PM	0	0	0	0	0	0	0	1	1	0	0	1	1	2	2	0	4	6		
04:30 PM	0	0	0	0	0	1	0	1	2	1	0	3	4	3	1	0	4	10		
04:45 PM	0	1	0	1	1	0	2	1	3	0	0	2	2	1	3	0	4	10		
Total Volume	0	1	0	1	1	1	3	4	8	2	1	8	11	8	7	0	15	35		
% App. Total	0	100	0	0	12.5	37.5	50	18.2	9.1	72.7	53.3	46.7	0	53.3	46.7	0	0	0	0	
PHF	.000	.250	.000	.250	.250	.375	1.00	.667	.500	.250	.667	.688	.667	.583	.000	.938	.875			

Peggy Malone & Associates
(800) 247-8602

File Name : 2-Progress St and PPatrick Henry THU PM
Site Code :
Start Date : 4/5/2018
Page No : 1

Groups Printed- Combined

Start Time	Progress St Southbound					Patrick Henry Dr Westbound					Progress St Northbound					Patrick Henry Dr Eastbound					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
03:00 PM	5	6	2	0	13	2	50	15	0	67	5	3	7	5	20	15	65	6	1	87	187
03:15 PM	9	5	2	0	16	0	73	13	0	86	10	5	9	3	27	10	57	9	1	77	206
03:30 PM	5	4	2	0	11	2	87	13	1	103	7	3	9	1	20	8	74	7	2	91	225
03:45 PM	3	2	2	2	9	6	95	4	0	105	10	10	15	5	40	12	74	7	0	93	247
Total	22	17	8	2	49	10	305	45	1	361	32	21	40	14	107	45	270	29	4	348	865
04:00 PM	3	4	4	0	11	2	87	8	0	97	13	2	12	0	27	13	57	10	1	81	216
04:15 PM	5	4	2	1	12	5	81	6	2	94	8	4	11	0	23	11	79	8	1	99	228
04:30 PM	10	5	1	1	17	5	94	10	0	109	11	4	15	2	32	17	72	4	0	93	251
04:45 PM	7	11	1	3	22	1	100	18	1	120	10	10	9	4	33	8	83	7	0	98	273
Total	25	24	8	5	62	13	362	42	3	420	42	20	47	6	115	49	291	29	2	371	968
05:00 PM	5	3	0	0	8	5	112	12	0	129	22	6	16	7	51	20	94	8	0	122	310
05:15 PM	7	4	1	3	15	3	108	12	0	123	15	4	21	5	45	10	78	15	0	103	286
05:30 PM	6	4	4	1	15	4	102	11	1	118	16	9	18	2	45	14	98	15	1	128	306
05:45 PM	10	5	2	3	20	0	86	11	0	97	19	6	17	1	43	15	105	14	2	136	296
Total	28	16	7	7	58	12	408	46	1	467	72	25	72	15	184	59	375	52	3	489	1198
06:00 PM	3	3	2	3	11	3	80	12	0	95	13	7	16	3	39	12	83	12	0	107	252
06:15 PM	10	4	0	0	14	5	75	14	0	94	16	9	12	0	37	11	63	11	0	85	230
06:30 PM	5	4	3	1	13	5	65	18	1	89	21	7	13	3	44	21	80	8	1	110	256
06:45 PM	7	4	3	1	15	2	63	10	0	75	9	7	13	1	30	9	87	13	2	111	231
Total	25	15	8	5	53	15	283	54	1	353	59	30	54	7	150	53	313	44	3	413	969
Grand Total	100	72	31	19	222	50	1358	187	6	1601	205	96	213	42	556	206	1249	154	12	1621	4000
Apprch %	45	32.4	14	8.6		3.1	84.8	11.7	0.4		36.9	17.3	38.3	7.6		12.7	77.1	9.5	0.7		
Total %	2.5	1.8	0.8	0.5	5.6	1.2	34	4.7	0.2	40	5.1	2.4	5.3	1	13.9	5.2	31.2	3.8	0.3	40.5	

Start Time	Progress St Southbound					Patrick Henry Dr Westbound					Progress St Northbound					Patrick Henry Dr Eastbound					Int. Total
	Right	Thru	Left	App. Total		Right	Thru	Left	App. Total		Right	Thru	Left	App. Total		Right	Thru	Left	App. Total		Int. Total
Peak Hour Analysis From 03:00 PM to 06:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:00 PM																					
05:00 PM	5	3	0	8		5	112	12	129		22	6	16	44		20	94	8	122		303
05:15 PM	7	4	1	12		3	108	12	123		15	4	21	40		10	78	15	103		278
05:30 PM	6	4	4	14		4	102	11	117		16	9	18	43		14	98	15	127		301
05:45 PM	10	5	2	17		0	86	11	97		19	6	17	42		15	105	14	134		290
Total Volume	28	16	7	51		12	408	46	466		72	25	72	169		59	375	52	486		1172
% App. Total	54.9	31.4	13.7			2.6	87.6	9.9			42.6	14.8	42.6			12.1	77.2	10.7			
PHF	.700	.800	.438	.750		.600	.911	.958	.903		.818	.694	.857	.960		.738	.893	.867	.907		.967

Appendix D

Signal Timing Data

Programmed EPAC Data

4/20/2018
2:48:12PM

Intersection Name: Patrick Henry-Progress

Access Code: 9999 Channel: 1 Address: 0 Revision: 3.33e
IP:

Intersection Alias:

pathenryprog Patrick Access Data
Henry-Progress

:1200 Baud
:9600 Baud

Phase Data

Vehical Basic Timings

Phase	Min_Grn	Passage	Max1	Max2	Yellow	All Red
1	15	3.0	30	30	3.4	2.1
2	15	3.0	30	50	3.1	2.2
3	5	3.0	20	30	3.1	3.3
4	8	3.0	20	50	3.0	2.4
7	5	3.0	20	30	3.0	2.4
8	8	3.0	20	50	3.1	3.3

Vehical Density Timings

Added	Initial	Max	Initial	Time B4 Reduction	Cars Before	Time To Reduce	Min Gap
0.0	0	0	0	0	0	0	0.0
0.0	0	0	0	0	0	0	0.0
0.0	0	0	0	0	0	0	0.0
0.0	0	0	0	0	0	0	0.0
0.0	0	0	0	0	0	0	0.0
0.0	0	0	0	0	0	0	0.0

Pedestrian Timing

Extended Actuated

General Control

Miscellaneous

No

Phase	Ped Walk	Clear	Flashing Walk	Ped Clear	Rest in Walk	Non-Act Initialize	Veh Response	Ped Recall	Recall Delay	Non Lock	Dual Entry	Last Car Passage	Conditional Service	Simultaneous Gap Out
1	5	11	No	0	No	Inactive	None	None	0	Yes	Yes	No	No	No
2	5	10	No	0	No	Green	NonActI	Min	0	Yes	No	No	No	No
3	0	0	No	0	No	Inactive	None	None	0	Yes	No	No	No	No
4	5	13	No	0	No	Inactive	NonActII	None	0	Yes	Yes	No	No	No
7	0	0	No	0	No	Inactive	None	None	0	Yes	No	No	No	No
8	5	13	No	0	No	Inactive	NonActII	None	0	Yes	Yes	No	No	No

Special Sequence

Default Data

Vehical Detector Phase Assignment

Assigned Phase

Mode

Switched Phase

Extend

Delay

Default Data

Pedestrian Detector

Default Data

Special Detector Phase Assignment

Assign Phase Mode

Switched Phase Extend

Delay

Default Data

Unit Data

General Control

Startup Time: 5sec Startup State: Flash Red Revert: 4.0sec

Auto Ped Clear: No Stop Time Reset: No Alternate Sequence: 0

Aux Switch Func: 0:NoFunction

Input Ring	Output Response	Selection
1	Ring 1	Ring 1
2	Ring 2	Ring 2
3	None	None
4	None	None

Remote Flash

Test A = Flash

Flash Channel Color Alternat

Flash

Entry

Exit

Phase Phase

Default Data - No Flash

Default Data - No Flash

Overlaps

Phase(s)	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
Green	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Yellow	4.0	2.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Red	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Stop Grn/Yel Phase	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Strat Green Phase	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Ring			Phase(s)															
Phase	Ring	Next Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Concurrent Phases			1	2	3	4	1	1	3	3	9	10	11	12	13	14	15	16
1	1	2																
2	1	3																
3	1	4																
4	1	1																
7	2	8																
8	2	5																

Alternate Sequences

No Alternate Sequences Programmed

Port 1 Data
BIU Port Message
Addr Status 40

Default Data

Control	Channel	Hardware Pins	Control	Channel	Hardware Pins
1 - Veh Phase 1	1	1 - Phase 1 RYG	2 - Veh Phase 2	2	2 - Phase 2 RYG
3 - Veh Phase 3	3	3 - Phase 3 RYG	4 - Veh Phase 4	4	4 - Phase 4 RYG
5 - Veh Phase 5	5	5 - Phase 5 RYG	6 - Veh Phase 6	6	6 - Phase 6 RYG
7 - Veh Phase 7	7	7 - Phase 7 RYG	8 - Veh Phase 8	8	8 - Phase 8 RYG
18 - Ped Phase 2	9	10 - Phase 2 DPW	20 - Ped Phase 4	10	12 - Phase 4 DPW
22 - Ped Phase 6	11	14 - Phase 6 DPW	24 - Ped Phase 8	12	16 - Phase 8 DPW
33 - Overlap A	13	17 - Overlap A RYG	34 - Overlap B	14	18 - Overlap B RYG
35 - Overlap C	15	19 - Overlap C RYG	36 - Overlap D	16	20 - Overlap D RYG
17 - Ped Phase 1	17	9 - Phase 1 DPW	19 - Ped Phase 3	18	11 - Phase 3 DPW
21 - Ped Phase 5	19	13 - Phase 5 DPW	23 - Ped Phase 7	20	15 - Phase 7 DPW

Coordination Data

General Coordination Data

Dial/Split Cycle

/

Operation Mode: 0=Free

Offset Mode: 0=Beg Grn

Manual Dial: 1

Coordination Mode: 0=Permissive

Force Mode: 0=Plan

Manual Split: 1

Maximun Mode: 2=Max 2

Max Dwell Time: 0

Manual Offset: 1

Correction Mode: 0=Dwell

Yield Period: 0

Split Times and Phase Mode

Dial / Split

Ph. Splits Ph. Mode

Ph. Splits Ph. Mode

Ph. Splits Ph. Mode

Ph. Splits Ph. Mode

Traffic Plan Data

Plan: //

Offset Time: Alt. Sequence: Mode:

Rg 2 Lag Time:

Rg 3 Lag Time: Rg 4 Lag Time:

Local TBC Data

Start of Daylight Saving Month: 3 Week: 2 Cycle Zero Reference Hours: 0 Min: 0

Source Day	Equate Days						
	1	2	3	4	5	6	7

End of Daylight Saving Month: 11 Week: 1

Traffic Data

Event	Day	Time	D/S/O	flash	PHASE FUNCTION														
					1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
:	//				<input type="checkbox"/>														

AUX. Events

Event	Program Day	Hour	Min.	Aux Outputs 1 2 3	Det. Diag. D1	Det. Rpt. D2	Det. Mult100 D3	Special Function Outputs								
								Dimming	1	2	3	4	5	6	7	8
				<input type="checkbox"/>												

Default Data - No Special Day(s) or Week(s) Programmed

Special Functions

Function	SF1	SF2	SF3	SF4	SF5	SF6	SF7	SF8
Special Function 1	X							
Special Function 2		X						
Special Function 3			X					
Special Function 4				X				
Special Function 5					X			
Special Function 6						X		
Special Function 7							X	
Special Function 8								X

Phase Function

Phase Function Map	PF1	PF2	PF3	PF4	PF5	PF6	PF7	PF8	PF9	PF10	PF11	PF12	PF13	PF14	PF15	PF16
Phase 1 Max2	X															
Phase 2 Max2		X														
Phase 3 Max2			X													
Phase 4 Max2				X												
Phase 5 Max2					X											
Phase 6 Max2						X										
Phase 7 Max2							X									
Phase 8 Max2								X								
Phase 1 Phase Omit									X							
Phase 2 Phase Omit										X						
Phase 3 Phase Omit											X					
Phase 4 Phase Omit												X				
Phase 5 Phase Omit													X			
Phase 6 Phase Omit														X		
Phase 7 Phase Omit															X	
Phase 8 Phase Omit																X

Dimming Data

Channel Red Yellow Green Alternate



Default Data - No Dimming Programmed

Preemption Data

General Preemption Data

Flash > Preempt 1, Preempt 1 > Preempt 2, Preempt 2 > Preempt 3, Preempt 3 > Preempt 4, Preempt 4 > Preempt 5, Preempt 5 > Preempt 6
 Ring 1 Min GRN/WLK = 5 Ring 2 Min GRN/WLK = 5 Ring 3 Min GRN/WLK = 5 Ring 4 Min GRN/WLK = 5

Preempt	Preempt Timers										Select			Track			D	Return			
	Non-Locking		Link to	Prmnt	Delay	Extend	Duration	MaxCall	Lck-Out	GateExt	Debounce	Ped Clr	Yel Red	Grn Ped	Yel Red	well Grn	Ped Clr	Yel Red			
1	No	0	0	0	0	0	0	0	0	0.0	8	40	20	0	8	40	20	10	8	40	20
2	No	0	0	0	0	0	0	0	0	0.0	8	40	20	0	8	40	20	10	8	40	20
3	No	0	0	0	0	0	0	0	0	0.0	8	40	20	0	8	40	20	10	8	40	20
4	No	0	0	0	0	0	0	0	0	0.0	8	40	20	0	8	40	20	10	8	40	20
5	No	0	0	0	0	0	0	0	0	0.0	8	40	20	0	8	40	20	10	8	40	20
6	No	0	0	0	0	0	0	0	0	0.0	8	40	20	0	8	40	20	10	8	40	20
1	No	0	0	0	0	0	0	0	0	0.0	8	40	20	10	8	40	20	10	8	40	20
2	No	0	0	0	0	0	0	0	0	0.0	8	40	20	10	8	40	20	10	8	40	20
3	No	0	0	0	0	0	0	0	0	0.0	8	40	20	10	8	40	20	10	8	40	20
4	No	0	0	0	0	0	0	0	0	0.0	8	40	20	10	8	40	20	10	8	40	20
5	No	0	0	0	0	0	0	0	0	0.0	8	40	20	10	8	40	20	10	8	40	20
6	No	0	0	0	0	0	0	0	0	0.0	8	40	20	10	8	40	20	10	8	40	20

Preempt 1			Preempt 2			Preempt 3			Preempt 4			Preempt 5			Preempt 6		
Phase	Exit Phase	Exit Calls															
1	No	Yes															
2	No	Yes	2	Yes	Yes	2	No	Yes									
3	No	Yes	3	No	Yes	3	Yes	Yes	3	No	Yes	3	No	Yes	3	No	Yes
4	No	Yes	4	No	Yes	4	No	Yes	4	Yes	Yes	4	No	Yes	4	No	Yes
5	No	Yes															
6	No	Yes															
7	No	Yes	7	No	Yes	7	No	Yes	7	Yes	Yes	7	No	Yes	7	No	Yes
8	No	Yes	8	No	Yes	8	Yes	Yes	8	No	Yes	8	No	Yes	8	No	Yes

Priority Timers										Skip Phases							
Priority	Non-Locking	Delay	Extend	Duration	Dwell	Max_Call	Lock-Out										
1	No	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0=Do not Skip Phases
2	No	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0=Do not Skip Phases
3	No	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0=Do not Skip Phases
4	No	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0=Do not Skip Phases
5	No	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0=Do not Skip Phases
6	No	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0=Do not Skip Phases

Priority 1			Priority 2			Priority 3			Priority 4			Priority 5			Priority 6		
Phase	Exit Phase	Exit Calls															
Priority 1	1	Red	Priority 2	2	Red	Priority 3	3	Red	Priority 4	4	Red	Priority 5	5	Red	Priority 6	6	Red
Phase	Exit Phase	Exit Calls															

Vehical Phases						Pedestrian Phases						Overlaps					
Ph.	Track	Dwell	Cycle	Ph	Track	Dwell	Cycle	Ovlp	Track	Dwell	Cycle	I	II	III	IV	V	VI
1	Red	Red	No	1	Don't Walk	Don't Walk	No	A	Red	Red	No	0	0	0	0	0	0
2	Red	Red	No	2	Don't Walk	Don't Walk	No	B	Red	Red	No	0	0	0	0	0	0
3	Red	Red	No	3	Don't Walk	Don't Walk	No	C	Red	Red	No	0	0	0	0	0	0
4	Red	Red	No	4	Don't Walk	Don't Walk	No	D	Red	Red	No	0	0	0	0	0	0
5	Red	Red	No	5	Don't Walk	Don't Walk	No	E	Red	Red	No	0	0	0	0	0	0
6	Red	Red	No	6	Don't Walk	Don't Walk	No	F	Red	Red	No	0	0	0	0	0	0
7	Red	Red	No	7	Don't Walk	Don't Walk	No	G	Red	Red	No	0	0	0	0	0	0
8	Red	Red	No	8	Don't Walk	Don't Walk	No	H	Red	Red	No	0	0	0	0	0	0
9	Red	Red	No	9	Don't Walk	Don't Walk	No	I	Red	Red	No	0	0	0	0	0	0
10	Red	Red	No	10	Don't Walk	Don't Walk	No	J	Red	Red	No	0	0	0	0	0	0
11	Red	Red	No	11	Don't Walk	Don't Walk	No	K	Red	Red	No	0	0	0	0	0	0
12	Red	Red	No	12	Don't Walk	Don't Walk	No	L	Red	Red	No	0	0	0	0	0	0
13	Red	Red	No	13	Don't Walk	Don't Walk	No	M	Red	Red	No	0	0	0	0	0	0
14	Red	Red	No	14	Don't Walk	Don't Walk	No	N	Red	Red	No	0	0	0	0	0	0
15	Red	Red	No	15	Don't Walk	Don't Walk	No	O	Red	Red	No	0	0	0	0	0	0
16	Red	Red	No	16	Don't Walk	Don't Walk	No	P	Red	Red	No	0	0	0	0	0	0

Vehical Phases			Pedestrian Phases			Overlaps					
Ph.	Track	Dwell	Cycle	Ph.	Track	Dwell	Cycle	Ovlp.	Track	Dwell	Cycle
1	Red	Green	No	1	Don't Walk	Don't Walk	No	A	Red	Red	No
2	Red	Red	No	2	Don't Walk	Don't Walk	No	B	Red	Red	No
3	Red	Red	No	3	Don't Walk	Don't Walk	No	C	Red	Red	No
4	Red	Red	No	4	Don't Walk	Don't Walk	No	D	Red	Red	No
5	Red	Red	No	5	Don't Walk	Don't Walk	No	E	Red	Red	No
6	Red	Red	No	6	Don't Walk	Don't Walk	No	F	Red	Red	No
7	Red	Red	No	7	Don't Walk	Don't Walk	No	G	Red	Red	No
8	Red	Red	No	8	Don't Walk	Don't Walk	No	H	Red	Red	No
9	Red	Red	No	9	Don't Walk	Don't Walk	No	I	Red	Red	No
10	Red	Red	No	10	Don't Walk	Don't Walk	No	J	Red	Red	No
11	Red	Red	No	11	Don't Walk	Don't Walk	No	K	Red	Red	No
12	Red	Red	No	12	Don't Walk	Don't Walk	No	L	Red	Red	No
13	Red	Red	No	13	Don't Walk	Don't Walk	No	M	Red	Red	No
14	Red	Red	No	14	Don't Walk	Don't Walk	No	N	Red	Red	No
15	Red	Red	No	15	Don't Walk	Don't Walk	No	O	Red	Red	No
16	Red	Red	No	16	Don't Walk	Don't Walk	No	P	Red	Red	No

Preempt 6

Vehical Phases			Pedestrian Phases			Overlaps					
Ph.	Track	Dwell	Cycle	Ph.	Track	Dwell	Cycle	Ovlp.	Track	Dwell	Cycle
1	Red	Red	No	1	Don't Walk	Don't Walk	No	A	Red	Red	No
2	Red	Red	No	2	Don't Walk	Don't Walk	No	B	Red	Red	No
3	Red	Red	No	3	Don't Walk	Don't Walk	No	C	Red	Red	No
4	Red	Red	No	4	Don't Walk	Don't Walk	No	D	Red	Red	No
5	Red	Red	No	5	Don't Walk	Don't Walk	No	E	Red	Red	No
6	Red	Red	No	6	Don't Walk	Don't Walk	No	F	Red	Red	No
7	Red	Red	No	7	Don't Walk	Don't Walk	No	G	Red	Red	No
8	Red	Red	No	8	Don't Walk	Don't Walk	No	H	Red	Red	No
9	Red	Red	No	9	Don't Walk	Don't Walk	No	I	Red	Red	No
10	Red	Red	No	10	Don't Walk	Don't Walk	No	J	Red	Red	No
11	Red	Red	No	11	Don't Walk	Don't Walk	No	K	Red	Red	No
12	Red	Red	No	12	Don't Walk	Don't Walk	No	L	Red	Red	No
13	Red	Red	No	13	Don't Walk	Don't Walk	No	M	Red	Red	No
14	Red	Red	No	14	Don't Walk	Don't Walk	No	N	Red	Red	No
15	Red	Red	No	15	Don't Walk	Don't Walk	No	O	Red	Red	No
16	Red	Red	No	16	Don't Walk	Don't Walk	No	P	Red	Red	No

System/Detectors Data

Local Critical Alarms

Revert to Backup: 15

Cycle Failure: No

Local Fash: No

Special Status 1: No

1st Phone:

Local Free: No

Cycle Fault: No

Special Status 2: No

2nd Phone:

Coord Failure: No

Coord Fault: No

Special Status 3: No

Conflict Flash: No

Premption: No

Special Status 4: No

Remote Flash: No

Voltage Monitor: No

Special Status 5: No

Special Status 6: No

Traffic Responsive

System Detector	Average Veh/Hr	Occupancy Time(mins)	Min Correction/10	Queue 1 Volume %	System Detectors	Weight Factor	Queue 2 System Detectors	Weight Factor
Detector Channel								

Default Data

Sample Interval:

Default Data

Default Data

Queue: 1 Input Selection: 0=Average Queue:
Detector Failed Level : 0 Level Enter Leave Dial / Split / Offset

Queue: 2 Input Selection: 0=Average / /

Detector Failed Level : 0 Default Data

Vehical Detector

Vehical Detector

Special Detector

Diagnostic Value 0

Diagnostic Value 1

Diagnostic Value 0

Max No Erratic

Max No Erratic

Max No Erratic

Detector Presence Activity Count

Detector Presence Activity Count

Detector Presence Activity Count

Default Data - Diag 0 Values

Default Data - No Diag 1 Values

Default Data - No Diag 0 Valt

Pedestrian Detector

Diagnostic Value 0

Max No Erratic
Detector Presence Activity Count

Default Data - No Diag 0 Values

Speed Trap Data

Speed Trap:

Measurement:

Detector 1 Detector_2 Distance :

Pedestrian Detector

Diagnostic Value 1

Max No Erratic
Detector Presence Activity Count

Default Data - No Diag 1 Values

Dial/Split/Offset

//

Default Data

Special Detector

Diagnostic Value 1

Max No Erratic
Detector Presence Activity Count

Default Data - No Diag 1 Values

Speed Trap

Speed Trap

Default Data

Volume Detector Data

Report Interval

Volume Controller

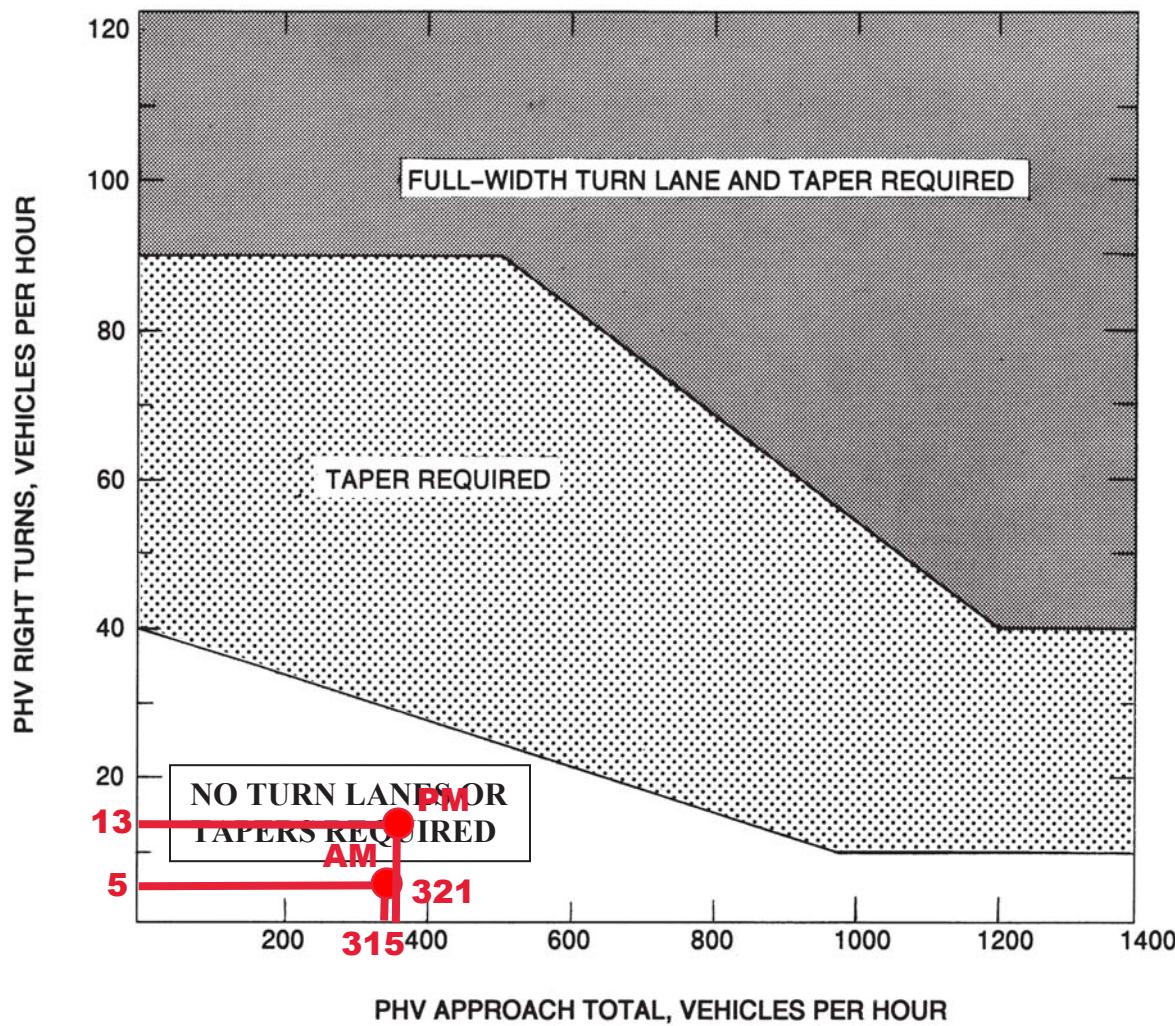
Detector Detector

Number Channel

Default Data

Appendix E

VDOT Turn Lane Worksheets



Appropriate Radius required at all Intersections and Entrances (Commercial or Private).

LEGEND

PHV - Peak Hour Volume (also Design Hourly Volume equivalent)

Adjustment for Right Turns

If PHV is not known use formula: $\text{PHV} = \text{ADT} \times K \times D$

K = the percent of AADT occurring in the peak hour

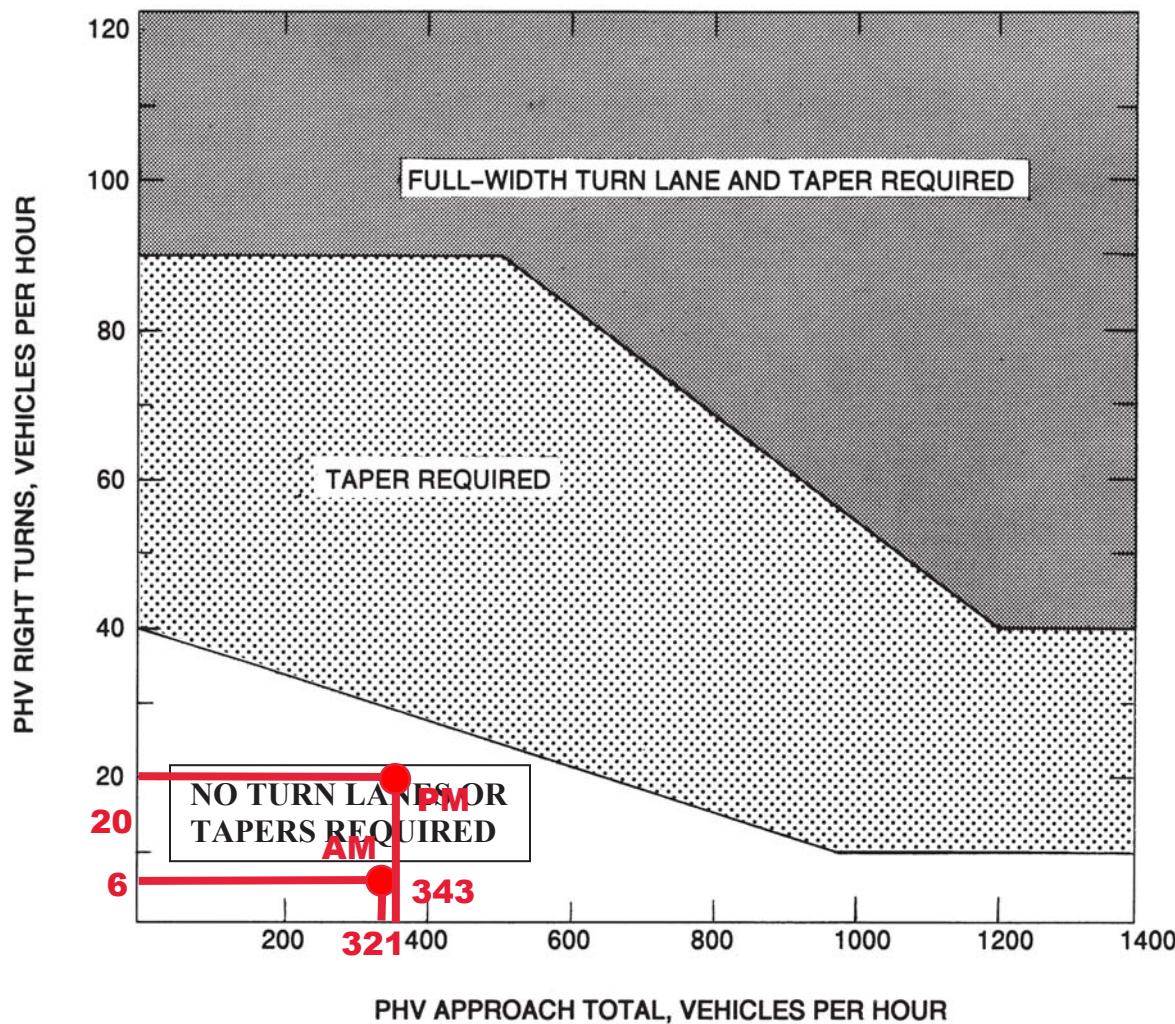
D = the percent of traffic in the peak direction of flow

Note: An average of 11% for K x D will suffice.

When right turn facilities are warranted, see Figure 3-1 for design criteria.*

FIGURE 3-27 WARRANTS FOR RIGHT TURN TREATMENT (4-LANE HIGHWAY)

* Rev. 1/15



Appropriate Radius required at all Intersections and Entrances (Commercial or Private).

LEGEND

PHV - Peak Hour Volume (also Design Hourly Volume equivalent)

Adjustment for Right Turns

If PHV is not known use formula: $\text{PHV} = \text{ADT} \times K \times D$

K = the percent of AADT occurring in the peak hour

D = the percent of traffic in the peak direction of flow

Note: An average of 11% for K x D will suffice.

When right turn facilities are warranted, see Figure 3-1 for design criteria.*

FIGURE 3-27 WARRANTS FOR RIGHT TURN TREATMENT (4-LANE HIGHWAY)

* Rev. 1/15

Appendix F

Synchro 10 & SimTraffic 10 Intersection Analysis Data

HCM 2010 Signalized Intersection Summary

6: Progress St & Patrick Henry Dr

07/23/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	19	179	25	27	272	4	30	11	10	2	38	44
Future Volume (veh/h)	19	179	25	27	272	4	30	11	10	2	38	44
Number	5	2	12	1	6	16	7	4	14	3	8	18
Initial Q (Q _b), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00		1.00	1.00	1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1773	1900	1900	1840	1900	1776	1900	1900	1900	1874	1900
Adj Flow Rate, veh/h	21	197	27	30	299	4	33	12	11	2	42	48
Adj No. of Lanes	0	2	0	0	2	1	1	1	0	1	1	0
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	4	4	4	1	1	0	7	0	0	0	3	3
Cap, veh/h	36	351	50	84	883	437	90	118	108	139	122	140
Arrive On Green	0.13	0.13	0.13	0.27	0.27	0.27	0.05	0.13	0.13	0.08	0.15	0.15
Sat Flow, veh/h	286	2779	397	311	3261	1615	1691	914	838	1810	799	913
Grp Volume(v), veh/h	129	0	116	176	153	4	33	0	23	2	0	90
Grp Sat Flow(s),veh/h/ln	1759	0	1703	1824	1748	1615	1691	0	1752	1810	0	1713
Q Serve(g_s), s	3.8	0.0	3.5	4.3	3.9	0.1	1.0	0.0	0.6	0.1	0.0	2.6
Cycle Q Clear(g_c), s	3.8	0.0	3.5	4.3	3.9	0.1	1.0	0.0	0.6	0.1	0.0	2.6
Prop In Lane	0.16		0.23	0.17		1.00	1.00		0.48	1.00		0.53
Lane Grp Cap(c), veh/h	222	0	215	494	473	437	90	0	226	139	0	262
V/C Ratio(X)	0.58	0.00	0.54	0.36	0.32	0.01	0.37	0.00	0.10	0.01	0.00	0.34
Avail Cap(c_a), veh/h	777	0	753	806	773	714	488	0	569	522	0	556
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	22.8	0.0	22.7	16.3	16.2	14.8	25.3	0.0	21.3	23.6	0.0	21.0
Incr Delay (d2), s/veh	2.4	0.0	2.1	0.4	0.4	0.0	2.5	0.0	0.2	0.0	0.0	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.0	0.0	1.8	2.2	1.9	0.0	0.5	0.0	0.3	0.0	0.0	1.3
LnGrp Delay(d),s/veh	25.2	0.0	24.8	16.8	16.5	14.8	27.8	0.0	21.5	23.7	0.0	21.8
LnGrp LOS	C		C	B	B	B	C		C	C		C
Approach Vol, veh/h	245				333			56			92	
Approach Delay, s/veh	25.0				16.6			25.2			21.8	
Approach LOS	C				B			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	2	3	4		6	7	8					
Phs Duration (G+Y+R _c), s	12.5	9.8	12.7		20.5	8.5	14.0					
Change Period (Y+R _c), s	5.5	5.5	5.5		5.5	5.5	5.5					
Max Green Setting (Gmax), s	24.5	16.0	18.0		24.5	16.0	18.0					
Max Q Clear Time (g_c+l1), s	5.8	2.1	2.6		6.3	3.0	4.6					
Green Ext Time (p_c), s	1.3	0.0	0.0		1.8	0.0	0.3					
Intersection Summary												
HCM 2010 Ctrl Delay				20.8								
HCM 2010 LOS				C								

Summary of All Intervals

Run Number	1	10	2	3	4	5	6
Start Time	8:15	8:15	8:15	8:15	8:15	8:15	8:15
End Time	9:30	9:30	9:30	9:30	9:30	9:30	9:30
Total Time (min)	75	75	75	75	75	75	75
Time Recorded (min)	60	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1	1
Vehs Entered	630	657	648	669	658	622	659
Vehs Exited	631	668	648	674	657	623	658
Starting Vehs	5	16	5	12	6	4	7
Ending Vehs	4	5	5	7	7	3	8
Travel Distance (mi)	124	131	127	132	130	123	129
Travel Time (hr)	7.6	8.1	8.2	8.3	8.1	7.8	8.1
Total Delay (hr)	2.7	2.8	3.1	3.0	2.9	2.8	2.9
Total Stops	422	444	451	473	469	436	460
Fuel Used (gal)	5.5	5.8	5.7	5.9	5.7	5.4	5.8

Summary of All Intervals

Run Number	7	8	9	Avg
Start Time	8:15	8:15	8:15	8:15
End Time	9:30	9:30	9:30	9:30
Total Time (min)	75	75	75	75
Time Recorded (min)	60	60	60	60
# of Intervals	2	2	2	2
# of Recorded Intervals	1	1	1	1
Vehs Entered	661	660	604	649
Vehs Exited	661	657	598	648
Starting Vehs	7	4	4	6
Ending Vehs	7	7	10	4
Travel Distance (mi)	130	130	118	127
Travel Time (hr)	8.1	8.1	7.3	8.0
Total Delay (hr)	2.9	2.8	2.5	2.8
Total Stops	471	460	414	452
Fuel Used (gal)	5.7	5.7	5.2	5.6

Interval #0 Information Seeding

Start Time	8:15
End Time	8:30
Total Time (min)	15
Volumes adjusted by Growth Factors.	
No data recorded this interval.	

Interval #1 Information Recording

Start Time 8:30

End Time 9:30

Total Time (min) 60

Volumes adjusted by Growth Factors.

Run Number	1	10	2	3	4	5	6
Vehs Entered	630	657	648	669	658	622	659
Vehs Exited	631	668	648	674	657	623	658
Starting Vehs	5	16	5	12	6	4	7
Ending Vehs	4	5	5	7	7	3	8
Travel Distance (mi)	124	131	127	132	130	123	129
Travel Time (hr)	7.6	8.1	8.2	8.3	8.1	7.8	8.1
Total Delay (hr)	2.7	2.8	3.1	3.0	2.9	2.8	2.9
Total Stops	422	444	451	473	469	436	460
Fuel Used (gal)	5.5	5.8	5.7	5.9	5.7	5.4	5.8

Interval #1 Information Recording

Start Time 8:30

End Time 9:30

Total Time (min) 60

Volumes adjusted by Growth Factors.

Run Number	7	8	9	Avg
Vehs Entered	661	660	604	649
Vehs Exited	661	657	598	648
Starting Vehs	7	4	4	6
Ending Vehs	7	7	10	4
Travel Distance (mi)	130	130	118	127
Travel Time (hr)	8.1	8.1	7.3	8.0
Total Delay (hr)	2.9	2.8	2.5	2.8
Total Stops	471	460	414	452
Fuel Used (gal)	5.7	5.7	5.2	5.6

Queuing and Blocking Report

Baseline

07/23/2018

Intersection: 6: Progress St & Patrick Henry Dr

Movement	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	LT	TR	LT	T	R	L	TR	L	TR
Maximum Queue (ft)	132	90	148	87	30	74	49	22	87
Average Queue (ft)	73	28	77	22	3	26	14	1	34
95th Queue (ft)	115	69	127	61	16	63	41	11	67
Link Distance (ft)	466	466	525	525			460		447
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)					225	100		150	
Storage Blk Time (%)					0		0		0
Queuing Penalty (veh)					0		0		0

Network Summary

Network wide Queuing Penalty: 0

HCM 2010 Signalized Intersection Summary

6: Progress St & Patrick Henry Dr

07/23/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	52	375	59	46	408	12	72	25	72	7	16	28
Future Volume (veh/h)	52	375	59	46	408	12	72	25	72	7	16	28
Number	5	2	12	1	6	16	7	4	14	3	8	18
Initial Q (Q _b), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.97	1.00		0.97	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1879	1900	1900	1850	1900	1727	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	54	387	61	47	421	12	74	26	74	7	16	29
Adj No. of Lanes	0	2	0	0	2	1	1	1	0	1	1	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	0	0	0	2	2	0	10	0	0	0	0	0
Cap, veh/h	78	583	96	79	745	358	121	66	189	124	91	164
Arrive On Green	0.21	0.21	0.21	0.23	0.23	0.23	0.07	0.16	0.16	0.07	0.15	0.15
Sat Flow, veh/h	376	2797	461	344	3246	1559	1645	425	1210	1810	598	1084
Grp Volume(v), veh/h	267	0	235	250	218	12	74	0	100	7	0	45
Grp Sat Flow(s),veh/h/ln	1861	0	1774	1833	1757	1559	1645	0	1635	1810	0	1683
Q Serve(g_s), s	8.7	0.0	7.9	8.0	7.1	0.4	2.9	0.0	3.6	0.2	0.0	1.5
Cycle Q Clear(g_c), s	8.7	0.0	7.9	8.0	7.1	0.4	2.9	0.0	3.6	0.2	0.0	1.5
Prop In Lane	0.20		0.26	0.19		1.00	1.00		0.74	1.00		0.64
Lane Grp Cap(c), veh/h	388	0	370	421	404	358	121	0	256	124	0	255
V/C Ratio(X)	0.69	0.00	0.63	0.59	0.54	0.03	0.61	0.00	0.39	0.06	0.00	0.18
Avail Cap(c_a), veh/h	698	0	665	687	659	585	403	0	451	443	0	464
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	23.9	0.0	23.6	22.4	22.1	19.5	29.3	0.0	24.8	28.4	0.0	24.2
Incr Delay (d2), s/veh	2.2	0.0	1.8	1.3	1.1	0.0	4.9	0.0	1.0	0.2	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.7	0.0	4.0	4.2	3.6	0.2	1.5	0.0	1.7	0.1	0.0	0.7
LnGrp Delay(d),s/veh	26.1	0.0	25.4	23.8	23.3	19.6	34.2	0.0	25.7	28.6	0.0	24.5
LnGrp LOS	C		C	C	C	B	C		C	C		C
Approach Vol, veh/h	502				480				174			52
Approach Delay, s/veh	25.8				23.4				29.4			25.0
Approach LOS	C				C				C			C
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	2	3	4		6	7	8					
Phs Duration (G+Y+R _c), s	19.1	10.0	15.7		20.5	10.3	15.4					
Change Period (Y+R _c), s	5.5	5.5	5.5		5.5	5.5	5.5					
Max Green Setting (Gmax), s	24.5	16.0	18.0		24.5	16.0	18.0					
Max Q Clear Time (g_c+l1), s	10.7	2.2	5.6		10.0	4.9	3.5					
Green Ext Time (p_c), s	2.7	0.0	0.4		2.5	0.1	0.1					
Intersection Summary												
HCM 2010 Ctrl Delay			25.3									
HCM 2010 LOS			C									

Summary of All Intervals

Run Number	1	10	2	3	4	5	6
Start Time	4:45	4:45	4:45	4:45	4:45	4:45	4:45
End Time	6:00	6:00	6:00	6:00	6:00	6:00	6:00
Total Time (min)	75	75	75	75	75	75	75
Time Recorded (min)	60	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1	1
Vehs Entered	1175	1204	1190	1133	1133	1098	1210
Vehs Exited	1187	1193	1194	1131	1145	1096	1215
Starting Vehs	31	13	20	19	25	14	19
Ending Vehs	19	24	16	21	13	16	14
Travel Distance (mi)	233	236	235	223	224	216	239
Travel Time (hr)	16.9	17.5	17.6	16.3	16.6	15.7	17.3
Total Delay (hr)	7.6	8.0	8.1	7.3	7.6	7.0	7.7
Total Stops	889	905	890	897	867	826	932
Fuel Used (gal)	11.1	11.3	11.4	10.6	10.8	10.2	11.5

Summary of All Intervals

Run Number	7	8	9	Avg
Start Time	4:45	4:45	4:45	4:45
End Time	6:00	6:00	6:00	6:00
Total Time (min)	75	75	75	75
Time Recorded (min)	60	60	60	60
# of Intervals	2	2	2	2
# of Recorded Intervals	1	1	1	1
Vehs Entered	1179	1155	1214	1168
Vehs Exited	1170	1143	1222	1169
Starting Vehs	15	9	24	16
Ending Vehs	24	21	16	18
Travel Distance (mi)	231	226	240	230
Travel Time (hr)	16.9	16.0	17.8	16.9
Total Delay (hr)	7.6	6.9	8.1	7.6
Total Stops	887	842	896	884
Fuel Used (gal)	11.0	10.7	11.6	11.0

Interval #0 Information Seeding

Start Time	4:45
End Time	5:00
Total Time (min)	15
Volumes adjusted by Growth Factors.	
No data recorded this interval.	

Interval #1 Information Recording

Start Time 5:00

End Time 6:00

Total Time (min) 60

Volumes adjusted by Growth Factors.

Run Number	1	10	2	3	4	5	6
Vehs Entered	1175	1204	1190	1133	1133	1098	1210
Vehs Exited	1187	1193	1194	1131	1145	1096	1215
Starting Vehs	31	13	20	19	25	14	19
Ending Vehs	19	24	16	21	13	16	14
Travel Distance (mi)	233	236	235	223	224	216	239
Travel Time (hr)	16.9	17.5	17.6	16.3	16.6	15.7	17.3
Total Delay (hr)	7.6	8.0	8.1	7.3	7.6	7.0	7.7
Total Stops	889	905	890	897	867	826	932
Fuel Used (gal)	11.1	11.3	11.4	10.6	10.8	10.2	11.5

Interval #1 Information Recording

Start Time 5:00

End Time 6:00

Total Time (min) 60

Volumes adjusted by Growth Factors.

Run Number	7	8	9	Avg
Vehs Entered	1179	1155	1214	1168
Vehs Exited	1170	1143	1222	1169
Starting Vehs	15	9	24	16
Ending Vehs	24	21	16	18
Travel Distance (mi)	231	226	240	230
Travel Time (hr)	16.9	16.0	17.8	16.9
Total Delay (hr)	7.6	6.9	8.1	7.6
Total Stops	887	842	896	884
Fuel Used (gal)	11.0	10.7	11.6	11.0

Queuing and Blocking Report

Baseline

07/23/2018

Intersection: 6: Progress St & Patrick Henry Dr

Movement	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	LT	TR	LT	T	R	L	TR	L	TR
Maximum Queue (ft)	251	211	230	207	33	97	136	31	59
Average Queue (ft)	148	88	147	81	8	50	46	4	20
95th Queue (ft)	223	177	220	174	30	92	97	20	46
Link Distance (ft)	466	466	525	525			460		447
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)					225	100		150	
Storage Blk Time (%)					0		1	0	
Queuing Penalty (veh)					0		1	0	

HCM 2010 Signalized Intersection Summary

6: Progress St & Patrick Henry Dr

07/23/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	21	198	25	31	275	4	31	12	12	2	39	44
Future Volume (veh/h)	21	198	25	31	275	4	31	12	12	2	39	44
Number	5	2	12	1	6	16	7	4	14	3	8	18
Initial Q (Q _b), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A _{pbT})	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1777	1900	1900	1835	1900	1776	1900	1900	1900	1873	1900
Adj Flow Rate, veh/h	23	218	27	34	302	4	34	13	13	2	43	48
Adj No. of Lanes	0	2	0	0	2	1	1	1	0	1	1	0
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	4	4	4	1	1	0	7	0	0	0	3	3
Cap, veh/h	39	381	49	92	860	432	93	113	113	139	122	136
Arrive On Green	0.13	0.13	0.13	0.27	0.27	0.27	0.06	0.13	0.13	0.08	0.15	0.15
Sat Flow, veh/h	287	2824	365	344	3218	1615	1691	873	873	1810	810	904
Grp Volume(v), veh/h	141	0	127	180	156	4	34	0	26	2	0	91
Grp Sat Flow(s),veh/h/ln	1763	0	1713	1818	1743	1615	1691	0	1746	1810	0	1714
Q Serve(g_s), s	4.2	0.0	3.9	4.5	4.0	0.1	1.1	0.0	0.7	0.1	0.0	2.7
Cycle Q Clear(g_c), s	4.2	0.0	3.9	4.5	4.0	0.1	1.1	0.0	0.7	0.1	0.0	2.7
Prop In Lane	0.16		0.21	0.19		1.00	1.00		0.50	1.00		0.53
Lane Grp Cap(c), veh/h	238	0	231	486	466	432	93	0	225	139	0	258
V/C Ratio(X)	0.59	0.00	0.55	0.37	0.34	0.01	0.36	0.00	0.12	0.01	0.00	0.35
Avail Cap(c_a), veh/h	770	0	748	794	761	705	482	0	560	516	0	550
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	22.8	0.0	22.7	16.7	16.5	15.1	25.6	0.0	21.6	23.9	0.0	21.4
Incr Delay (d2), s/veh	2.4	0.0	2.0	0.5	0.4	0.0	2.4	0.0	0.2	0.0	0.0	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.2	0.0	2.0	2.3	2.0	0.0	0.6	0.0	0.4	0.0	0.0	1.3
LnGrp Delay(d),s/veh	25.2	0.0	24.7	17.2	17.0	15.1	27.9	0.0	21.8	24.0	0.0	22.2
LnGrp LOS	C		C	B	B	B	C		C	C		C
Approach Vol, veh/h	268			340			60			93		
Approach Delay, s/veh	25.0			17.1			25.3			22.2		
Approach LOS	C			B			C			C		
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	2	3	4		6	7	8					
Phs Duration (G+Y+R _c), s	13.1	9.8	12.7		20.5	8.6	14.0					
Change Period (Y+R _c), s	5.5	5.5	5.5		5.5	5.5	5.5					
Max Green Setting (Gmax), s	24.5	16.0	18.0		24.5	16.0	18.0					
Max Q Clear Time (g_c+l1), s	6.2	2.1	2.7		6.5	3.1	4.7					
Green Ext Time (p_c), s	1.5	0.0	0.1		1.9	0.0	0.3					
Intersection Summary												
HCM 2010 Ctrl Delay	21.1											
HCM 2010 LOS	C											

Summary of All Intervals

Run Number	1	10	2	3	4	5	6
Start Time	8:15	8:15	8:15	8:15	8:15	8:15	8:15
End Time	9:30	9:30	9:30	9:30	9:30	9:30	9:30
Total Time (min)	75	75	75	75	75	75	75
Time Recorded (min)	60	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1	1
Vehs Entered	1144	1297	1278	1277	1314	1251	1259
Vehs Exited	1151	1300	1269	1267	1327	1255	1247
Starting Vehs	24	31	27	24	36	35	18
Ending Vehs	17	28	36	34	23	31	30
Travel Distance (mi)	448	503	506	497	516	483	489
Travel Time (hr)	25.2	28.6	29.7	28.4	30.6	27.7	28.3
Total Delay (hr)	7.0	8.4	9.0	8.2	9.6	8.0	8.5
Total Stops	1100	1287	1299	1272	1384	1246	1271
Fuel Used (gal)	17.8	20.2	21.0	20.3	21.4	19.5	19.8

Summary of All Intervals

Run Number	7	8	9	Avg
Start Time	8:15	8:15	8:15	8:15
End Time	9:30	9:30	9:30	9:30
Total Time (min)	75	75	75	75
Time Recorded (min)	60	60	60	60
# of Intervals	2	2	2	2
# of Recorded Intervals	1	1	1	1
Vehs Entered	1285	1274	1242	1263
Vehs Exited	1280	1262	1238	1259
Starting Vehs	26	22	18	24
Ending Vehs	31	34	22	28
Travel Distance (mi)	500	496	480	492
Travel Time (hr)	28.7	28.3	28.1	28.4
Total Delay (hr)	8.3	8.2	8.6	8.4
Total Stops	1264	1266	1244	1264
Fuel Used (gal)	20.4	20.0	19.6	20.0

Interval #0 Information Seeding

Start Time	8:15
End Time	8:30
Total Time (min)	15
Volumes adjusted by Growth Factors.	
No data recorded this interval.	

Interval #1 Information Recording

Start Time 8:30

End Time 9:30

Total Time (min) 60

Volumes adjusted by Growth Factors.

Run Number	1	10	2	3	4	5	6
Vehs Entered	1144	1297	1278	1277	1314	1251	1259
Vehs Exited	1151	1300	1269	1267	1327	1255	1247
Starting Vehs	24	31	27	24	36	35	18
Ending Vehs	17	28	36	34	23	31	30
Travel Distance (mi)	448	503	506	497	516	483	489
Travel Time (hr)	25.2	28.6	29.7	28.4	30.6	27.7	28.3
Total Delay (hr)	7.0	8.4	9.0	8.2	9.6	8.0	8.5
Total Stops	1100	1287	1299	1272	1384	1246	1271
Fuel Used (gal)	17.8	20.2	21.0	20.3	21.4	19.5	19.8

Interval #1 Information Recording

Start Time 8:30

End Time 9:30

Total Time (min) 60

Volumes adjusted by Growth Factors.

Run Number	7	8	9	Avg
Vehs Entered	1285	1274	1242	1263
Vehs Exited	1280	1262	1238	1259
Starting Vehs	26	22	18	24
Ending Vehs	31	34	22	28
Travel Distance (mi)	500	496	480	492
Travel Time (hr)	28.7	28.3	28.1	28.4
Total Delay (hr)	8.3	8.2	8.6	8.4
Total Stops	1264	1266	1244	1264
Fuel Used (gal)	20.4	20.0	19.6	20.0

Queuing and Blocking Report

Baseline

04/27/2018

Intersection: 3: Toms Creek Rd & University City Blvd/Patrick Henry Dr

Movement	EB	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	TR	L	TR	L	TR	L	TR
Maximum Queue (ft)	69	117	99	153	217	84	140	121	238
Average Queue (ft)	25	50	37	72	98	21	58	52	96
95th Queue (ft)	57	96	76	125	174	64	112	103	176
Link Distance (ft)		466	466	2132	2132		454		466
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)	150				100		125		
Storage Blk Time (%)		0				0	2	0	3
Queuing Penalty (veh)		0				0	0	0	3

Intersection: 6: Progress St & Patrick Henry Dr

Movement	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	LT	TR	LT	T	R	L	TR	L	TR
Maximum Queue (ft)	105	117	137	106	30	60	55	23	88
Average Queue (ft)	50	53	71	29	2	24	15	2	31
95th Queue (ft)	84	96	122	72	15	56	45	12	64
Link Distance (ft)	2132	2132	525	525			460		447
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)				225	100		150		
Storage Blk Time (%)									
Queuing Penalty (veh)									

Network Summary

Network wide Queuing Penalty: 4

HCM 2010 Signalized Intersection Summary

6: Progress St & Patrick Henry Dr

07/23/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	55	405	60	67	412	12	77	27	81	7	20	28
Future Volume (veh/h)	55	405	60	67	412	12	77	27	81	7	20	28
Number	5	2	12	1	6	16	7	4	14	3	8	18
Initial Q (Q _b), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.96	1.00		0.97	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1880	1900	1900	1845	1900	1727	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	57	418	62	69	425	12	79	28	84	7	21	29
Adj No. of Lanes	0	2	0	0	2	1	1	1	0	1	1	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	0	0	0	2	2	0	10	0	0	0	0	0
Cap, veh/h	80	613	95	107	698	351	126	65	194	125	108	149
Arrive On Green	0.22	0.22	0.22	0.23	0.23	0.23	0.08	0.16	0.16	0.07	0.15	0.15
Sat Flow, veh/h	371	2831	440	477	3098	1558	1645	408	1225	1810	715	987
Grp Volume(v), veh/h	286	0	251	264	230	12	79	0	112	7	0	50
Grp Sat Flow(s),veh/h/ln	1862	0	1780	1821	1753	1558	1645	0	1633	1810	0	1702
Q Serve(g_s), s	9.5	0.0	8.6	8.7	7.8	0.4	3.1	0.0	4.1	0.2	0.0	1.7
Cycle Q Clear(g_c), s	9.5	0.0	8.6	8.7	7.8	0.4	3.1	0.0	4.1	0.2	0.0	1.7
Prop In Lane	0.20		0.25	0.26		1.00	1.00		0.75	1.00		0.58
Lane Grp Cap(c), veh/h	403	0	385	411	395	351	126	0	259	125	0	257
V/C Ratio(X)	0.71	0.00	0.65	0.64	0.58	0.03	0.63	0.00	0.43	0.06	0.00	0.19
Avail Cap(c_a), veh/h	686	0	656	671	646	574	396	0	442	435	0	461
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	24.1	0.0	23.8	23.3	23.0	20.1	29.8	0.0	25.3	28.9	0.0	24.7
Incr Delay (d2), s/veh	2.3	0.0	1.9	1.7	1.4	0.0	5.1	0.0	1.1	0.2	0.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.1	0.0	4.4	4.6	3.9	0.2	1.6	0.0	1.9	0.1	0.0	0.8
LnGrp Delay(d),s/veh	26.4	0.0	25.6	25.0	24.3	20.1	34.9	0.0	26.4	29.1	0.0	25.1
LnGrp LOS	C		C	C	C	C	C		C	C		C
Approach Vol, veh/h	537				506				191			57
Approach Delay, s/veh	26.1				24.6				29.9			25.6
Approach LOS	C				C				C			C
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	2	3	4		6	7	8					
Phs Duration (G+Y+R _c), s	19.9	10.1	16.0		20.5	10.6	15.5					
Change Period (Y+R _c), s	5.5	5.5	5.5		5.5	5.5	5.5					
Max Green Setting (Gmax), s	24.5	16.0	18.0		24.5	16.0	18.0					
Max Q Clear Time (g_c+l1), s	11.5	2.2	6.1		10.7	5.1	3.7					
Green Ext Time (p_c), s	2.8	0.0	0.4		2.6	0.1	0.1					
Intersection Summary												
HCM 2010 Ctrl Delay			26.0									
HCM 2010 LOS			C									

Summary of All Intervals

Run Number	1	10	2	3	4	5	6
Start Time	4:45	4:45	4:45	4:45	4:45	4:45	4:45
End Time	6:00	6:00	6:00	6:00	6:00	6:00	6:00
Total Time (min)	75	75	75	75	75	75	75
Time Recorded (min)	60	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1	1
Vehs Entered	1274	1286	1253	1231	1212	1196	1289
Vehs Exited	1273	1288	1264	1242	1222	1184	1286
Starting Vehs	16	18	23	20	18	10	18
Ending Vehs	17	16	12	9	8	22	21
Travel Distance (mi)	251	254	248	244	240	234	254
Travel Time (hr)	19.1	19.8	18.5	17.9	18.6	17.8	20.0
Total Delay (hr)	9.0	9.6	8.5	8.0	8.9	8.3	9.7
Total Stops	988	1021	954	954	950	922	1043
Fuel Used (gal)	12.3	12.4	12.1	11.6	11.9	11.2	12.6

Summary of All Intervals

Run Number	7	8	9	Avg
Start Time	4:45	4:45	4:45	4:45
End Time	6:00	6:00	6:00	6:00
Total Time (min)	75	75	75	75
Time Recorded (min)	60	60	60	60
# of Intervals	2	2	2	2
# of Recorded Intervals	1	1	1	1
Vehs Entered	1220	1229	1261	1244
Vehs Exited	1216	1224	1265	1246
Starting Vehs	22	14	21	15
Ending Vehs	26	19	17	15
Travel Distance (mi)	240	241	249	246
Travel Time (hr)	18.1	18.7	19.1	18.7
Total Delay (hr)	8.5	9.0	9.1	8.9
Total Stops	947	957	983	971
Fuel Used (gal)	11.7	11.8	12.2	12.0

Interval #0 Information Seeding

Start Time	4:45
End Time	5:00
Total Time (min)	15
Volumes adjusted by Growth Factors.	
No data recorded this interval.	

SimTraffic Simulation Summary

Baseline

07/23/2018

Interval #1 Information Recording

Start Time 5:00

End Time 6:00

Total Time (min) 60

Volumes adjusted by Growth Factors.

Run Number	1	10	2	3	4	5	6
Vehs Entered	1274	1286	1253	1231	1212	1196	1289
Vehs Exited	1273	1288	1264	1242	1222	1184	1286
Starting Vehs	16	18	23	20	18	10	18
Ending Vehs	17	16	12	9	8	22	21
Travel Distance (mi)	251	254	248	244	240	234	254
Travel Time (hr)	19.1	19.8	18.5	17.9	18.6	17.8	20.0
Total Delay (hr)	9.0	9.6	8.5	8.0	8.9	8.3	9.7
Total Stops	988	1021	954	954	950	922	1043
Fuel Used (gal)	12.3	12.4	12.1	11.6	11.9	11.2	12.6

Interval #1 Information Recording

Start Time 5:00

End Time 6:00

Total Time (min) 60

Volumes adjusted by Growth Factors.

Run Number	7	8	9	Avg
Vehs Entered	1220	1229	1261	1244
Vehs Exited	1216	1224	1265	1246
Starting Vehs	22	14	21	15
Ending Vehs	26	19	17	15
Travel Distance (mi)	240	241	249	246
Travel Time (hr)	18.1	18.7	19.1	18.7
Total Delay (hr)	8.5	9.0	9.1	8.9
Total Stops	947	957	983	971
Fuel Used (gal)	11.7	11.8	12.2	12.0

Queuing and Blocking Report

Baseline

07/23/2018

Intersection: 6: Progress St & Patrick Henry Dr

Movement	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	LT	TR	LT	T	R	L	TR	L	TR
Maximum Queue (ft)	255	214	271	239	33	98	170	35	68
Average Queue (ft)	156	100	167	101	8	55	52	5	24
95th Queue (ft)	229	190	246	202	30	96	116	23	54
Link Distance (ft)	466	466	525	525			460		447
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)					225	100		150	
Storage Blk Time (%)					0		2	1	
Queuing Penalty (veh)					0		2	1	

Network Summary

Network wide Queuing Penalty: 3

HCM 2010 Signalized Intersection Summary

6: Progress St & Patrick Henry Dr

07/23/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	21	198	25	48	286	4	31	12	12	2	39	44
Future Volume (veh/h)	21	198	25	48	286	4	31	12	12	2	39	44
Number	5	2	12	1	6	16	7	4	14	3	8	18
Initial Q (Q _b), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1777	1900	1900	1816	1900	1776	1900	1900	1900	1873	1900
Adj Flow Rate, veh/h	23	218	27	53	314	4	34	13	13	2	43	48
Adj No. of Lanes	0	2	0	0	2	1	1	1	0	1	1	0
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	4	4	4	1	1	0	7	0	0	0	3	3
Cap, veh/h	39	381	49	129	811	432	93	113	113	139	122	136
Arrive On Green	0.13	0.13	0.13	0.27	0.27	0.27	0.06	0.13	0.13	0.08	0.15	0.15
Sat Flow, veh/h	287	2824	365	484	3033	1615	1691	873	873	1810	810	904
Grp Volume(v), veh/h	141	0	127	196	171	4	34	0	26	2	0	91
Grp Sat Flow(s),veh/h/ln	1763	0	1713	1792	1725	1615	1691	0	1746	1810	0	1714
Q Serve(g_s), s	4.2	0.0	3.9	5.1	4.5	0.1	1.1	0.0	0.7	0.1	0.0	2.7
Cycle Q Clear(g_c), s	4.2	0.0	3.9	5.1	4.5	0.1	1.1	0.0	0.7	0.1	0.0	2.7
Prop In Lane	0.16		0.21	0.27		1.00	1.00		0.50	1.00		0.53
Lane Grp Cap(c), veh/h	238	0	231	479	461	432	93	0	225	139	0	258
V/C Ratio(X)	0.59	0.00	0.55	0.41	0.37	0.01	0.36	0.00	0.12	0.01	0.00	0.35
Avail Cap(c_a), veh/h	770	0	748	782	753	705	482	0	560	516	0	550
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	22.8	0.0	22.7	16.9	16.7	15.1	25.6	0.0	21.6	23.9	0.0	21.4
Incr Delay (d2), s/veh	2.4	0.0	2.0	0.6	0.5	0.0	2.4	0.0	0.2	0.0	0.0	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.2	0.0	2.0	2.6	2.2	0.0	0.6	0.0	0.4	0.0	0.0	1.3
LnGrp Delay(d),s/veh	25.2	0.0	24.7	17.5	17.2	15.1	27.9	0.0	21.8	24.0	0.0	22.2
LnGrp LOS	C		C	B	B	B	C		C	C		C
Approach Vol, veh/h	268				371			60			93	
Approach Delay, s/veh	25.0				17.3			25.3			22.2	
Approach LOS	C				B			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	2	3	4		6	7	8					
Phs Duration (G+Y+R _c), s	13.1	9.8	12.7		20.5	8.6	14.0					
Change Period (Y+R _c), s	5.5	5.5	5.5		5.5	5.5	5.5					
Max Green Setting (Gmax), s	24.5	16.0	18.0		24.5	16.0	18.0					
Max Q Clear Time (g_c+l1), s	6.2	2.1	2.7		7.1	3.1	4.7					
Green Ext Time (p_c), s	1.5	0.0	0.1		2.1	0.0	0.3					
Intersection Summary												
HCM 2010 Ctrl Delay	21.1											
HCM 2010 LOS	C											

Summary of All Intervals

Run Number	1	10	2	3	4	5	6
Start Time	8:15	8:15	8:15	8:15	8:15	8:15	8:15
End Time	9:30	9:30	9:30	9:30	9:30	9:30	9:30
Total Time (min)	75	75	75	75	75	75	75
Time Recorded (min)	60	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1	1
Vehs Entered	713	687	745	727	717	669	741
Vehs Exited	720	696	746	731	708	667	740
Starting Vehs	12	15	6	13	8	9	7
Ending Vehs	5	6	5	9	17	11	8
Travel Distance (mi)	141	137	147	143	140	132	146
Travel Time (hr)	9.0	8.7	9.7	9.2	9.0	8.3	9.2
Total Delay (hr)	3.4	3.2	3.7	3.4	3.3	3.0	3.3
Total Stops	481	483	529	519	506	473	515
Fuel Used (gal)	6.4	6.1	6.7	6.4	6.3	5.9	6.4

Summary of All Intervals

Run Number	7	8	9	Avg
Start Time	8:15	8:15	8:15	8:15
End Time	9:30	9:30	9:30	9:30
Total Time (min)	75	75	75	75
Time Recorded (min)	60	60	60	60
# of Intervals	2	2	2	2
# of Recorded Intervals	1	1	1	1
Vehs Entered	731	718	697	715
Vehs Exited	734	714	694	715
Starting Vehs	8	6	7	7
Ending Vehs	5	10	10	7
Travel Distance (mi)	144	141	137	141
Travel Time (hr)	9.2	9.2	8.5	9.0
Total Delay (hr)	3.4	3.5	3.0	3.3
Total Stops	519	508	484	504
Fuel Used (gal)	6.5	6.4	6.1	6.3

Interval #0 Information Seeding

Start Time	8:15
End Time	8:30
Total Time (min)	15
Volumes adjusted by Growth Factors.	
No data recorded this interval.	

Interval #1 Information Recording

Start Time 8:30

End Time 9:30

Total Time (min) 60

Volumes adjusted by Growth Factors.

Run Number	1	10	2	3	4	5	6
Vehs Entered	713	687	745	727	717	669	741
Vehs Exited	720	696	746	731	708	667	740
Starting Vehs	12	15	6	13	8	9	7
Ending Vehs	5	6	5	9	17	11	8
Travel Distance (mi)	141	137	147	143	140	132	146
Travel Time (hr)	9.0	8.7	9.7	9.2	9.0	8.3	9.2
Total Delay (hr)	3.4	3.2	3.7	3.4	3.3	3.0	3.3
Total Stops	481	483	529	519	506	473	515
Fuel Used (gal)	6.4	6.1	6.7	6.4	6.3	5.9	6.4

Interval #1 Information Recording

Start Time 8:30

End Time 9:30

Total Time (min) 60

Volumes adjusted by Growth Factors.

Run Number	7	8	9	Avg
Vehs Entered	731	718	697	715
Vehs Exited	734	714	694	715
Starting Vehs	8	6	7	7
Ending Vehs	5	10	10	7
Travel Distance (mi)	144	141	137	141
Travel Time (hr)	9.2	9.2	8.5	9.0
Total Delay (hr)	3.4	3.5	3.0	3.3
Total Stops	519	508	484	504
Fuel Used (gal)	6.5	6.4	6.1	6.3

Queuing and Blocking Report

Baseline

07/23/2018

Intersection: 6: Progress St & Patrick Henry Dr

Movement	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	LT	TR	LT	T	R	L	TR	L	TR
Maximum Queue (ft)	161	111	190	130	31	78	53	23	82
Average Queue (ft)	78	33	92	28	2	27	18	2	36
95th Queue (ft)	128	81	153	81	14	61	46	12	69
Link Distance (ft)	466	466	525	525			460		447
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)					225	100		150	
Storage Blk Time (%)					0		0		
Queuing Penalty (veh)					0		0		

Network Summary

Network wide Queuing Penalty: 0

HCM 2010 Signalized Intersection Summary

6: Progress St & Patrick Henry Dr

07/23/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	55	405	60	85	424	12	77	27	81	7	20	28
Future Volume (veh/h)	55	405	60	85	424	12	77	27	81	7	20	28
Number	5	2	12	1	6	16	7	4	14	3	8	18
Initial Q (Q _b), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			0.96	1.00		0.96	1.00		0.97	1.00	0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1880	1900	1900	1842	1900	1727	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	57	418	62	88	437	12	79	28	84	7	21	29
Adj No. of Lanes	0	2	0	0	2	1	1	1	0	1	1	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	0	0	0	2	2	0	10	0	0	0	0	0
Cap, veh/h	80	613	95	129	675	351	126	65	194	125	108	149
Arrive On Green	0.22	0.22	0.22	0.23	0.23	0.23	0.08	0.16	0.16	0.07	0.15	0.15
Sat Flow, veh/h	371	2831	440	570	2993	1558	1645	408	1225	1810	715	987
Grp Volume(v), veh/h	286	0	251	280	245	12	79	0	112	7	0	50
Grp Sat Flow(s),veh/h/ln	1862	0	1780	1813	1749	1558	1645	0	1633	1810	0	1702
Q Serve(g_s), s	9.5	0.0	8.6	9.4	8.4	0.4	3.1	0.0	4.1	0.2	0.0	1.7
Cycle Q Clear(g_c), s	9.5	0.0	8.6	9.4	8.4	0.4	3.1	0.0	4.1	0.2	0.0	1.7
Prop In Lane	0.20		0.25	0.31		1.00	1.00		0.75	1.00		0.58
Lane Grp Cap(c), veh/h	403	0	385	409	394	351	126	0	259	125	0	257
V/C Ratio(X)	0.71	0.00	0.65	0.68	0.62	0.03	0.63	0.00	0.43	0.06	0.00	0.19
Avail Cap(c_a), veh/h	686	0	656	668	644	574	396	0	442	435	0	461
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	24.1	0.0	23.8	23.6	23.2	20.1	29.8	0.0	25.3	28.9	0.0	24.7
Incr Delay (d2), s/veh	2.3	0.0	1.9	2.0	1.6	0.0	5.1	0.0	1.1	0.2	0.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.1	0.0	4.4	4.9	4.2	0.2	1.6	0.0	1.9	0.1	0.0	0.8
LnGrp Delay(d),s/veh	26.4	0.0	25.6	25.6	24.8	20.1	34.9	0.0	26.4	29.1	0.0	25.1
LnGrp LOS	C		C	C	C	C	C		C	C		C
Approach Vol, veh/h	537			537			191			57		
Approach Delay, s/veh	26.1			25.1			29.9			25.6		
Approach LOS	C			C			C			C		
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	2	3	4		6	7	8					
Phs Duration (G+Y+R _c), s	19.9	10.1	16.0		20.5	10.6	15.5					
Change Period (Y+R _c), s	5.5	5.5	5.5		5.5	5.5	5.5					
Max Green Setting (Gmax), s	24.5	16.0	18.0		24.5	16.0	18.0					
Max Q Clear Time (g_c+l1), s	11.5	2.2	6.1		11.4	5.1	3.7					
Green Ext Time (p_c), s	2.8	0.0	0.4		2.8	0.1	0.1					
Intersection Summary												
HCM 2010 Ctrl Delay			26.2									
HCM 2010 LOS			C									

Summary of All Intervals

Run Number	1	10	2	3	4	5	6
Start Time	4:45	4:45	4:45	4:45	4:45	4:45	4:45
End Time	6:00	6:00	6:00	6:00	6:00	6:00	6:00
Total Time (min)	75	75	75	75	75	75	75
Time Recorded (min)	60	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1	1
Vehs Entered	1281	1323	1263	1198	1275	1270	1300
Vehs Exited	1274	1323	1267	1199	1272	1261	1299
Starting Vehs	18	19	22	19	19	14	19
Ending Vehs	25	19	18	18	22	23	20
Travel Distance (mi)	252	261	249	237	252	249	256
Travel Time (hr)	19.3	19.8	18.6	17.7	19.2	19.1	19.1
Total Delay (hr)	9.1	9.4	8.6	8.2	9.1	9.0	8.8
Total Stops	994	1029	954	928	997	978	1018
Fuel Used (gal)	12.3	12.7	12.1	11.5	12.3	12.0	12.4

Summary of All Intervals

Run Number	7	8	9	Avg
Start Time	4:45	4:45	4:45	4:45
End Time	6:00	6:00	6:00	6:00
Total Time (min)	75	75	75	75
Time Recorded (min)	60	60	60	60
# of Intervals	2	2	2	2
# of Recorded Intervals	1	1	1	1
Vehs Entered	1284	1278	1316	1278
Vehs Exited	1283	1281	1319	1279
Starting Vehs	18	22	24	17
Ending Vehs	19	19	21	20
Travel Distance (mi)	253	253	260	252
Travel Time (hr)	19.3	19.5	20.2	19.2
Total Delay (hr)	9.1	9.3	9.8	9.1
Total Stops	1008	993	1059	996
Fuel Used (gal)	12.5	12.5	12.9	12.3

Interval #0 Information Seeding

Start Time	4:45
End Time	5:00
Total Time (min)	15
Volumes adjusted by Growth Factors.	
No data recorded this interval.	

Interval #1 Information Recording

Start Time 5:00

End Time 6:00

Total Time (min) 60

Volumes adjusted by Growth Factors.

Run Number	1	10	2	3	4	5	6
Vehs Entered	1281	1323	1263	1198	1275	1270	1300
Vehs Exited	1274	1323	1267	1199	1272	1261	1299
Starting Vehs	18	19	22	19	19	14	19
Ending Vehs	25	19	18	18	22	23	20
Travel Distance (mi)	252	261	249	237	252	249	256
Travel Time (hr)	19.3	19.8	18.6	17.7	19.2	19.1	19.1
Total Delay (hr)	9.1	9.4	8.6	8.2	9.1	9.0	8.8
Total Stops	994	1029	954	928	997	978	1018
Fuel Used (gal)	12.3	12.7	12.1	11.5	12.3	12.0	12.4

Interval #1 Information Recording

Start Time 5:00

End Time 6:00

Total Time (min) 60

Volumes adjusted by Growth Factors.

Run Number	7	8	9	Avg
Vehs Entered	1284	1278	1316	1278
Vehs Exited	1283	1281	1319	1279
Starting Vehs	18	22	24	17
Ending Vehs	19	19	21	20
Travel Distance (mi)	253	253	260	252
Travel Time (hr)	19.3	19.5	20.2	19.2
Total Delay (hr)	9.1	9.3	9.8	9.1
Total Stops	1008	993	1059	996
Fuel Used (gal)	12.5	12.5	12.9	12.3

Queuing and Blocking Report

Baseline

07/23/2018

Intersection: 6: Progress St & Patrick Henry Dr

Movement	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	LT	TR	LT	T	R	L	TR	L	TR
Maximum Queue (ft)	249	212	292	242	33	97	176	31	75
Average Queue (ft)	157	102	174	105	8	52	49	5	24
95th Queue (ft)	226	192	256	214	29	92	111	22	54
Link Distance (ft)	466	466	525	525			460		447
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)					225	100		150	
Storage Blk Time (%)					0		2	1	
Queuing Penalty (veh)					0		2	1	